amateur radio

Vol. 36, No. 5
MAY
1968

30c

Registered at G.P.O., Melbourne, for transmission by post as a periodical

F.M. TAXI RADIOS

T.C.A. (Philips), Low Band, F.M. Mobile Units, 12 volt. Crystal locked, 120 Kc. bandwidth. Operating frequency, approx. 80 Mc. Complete with all valves, vibrator and microphone. Suit Amateur conversion. **Good condition.**

OUR PRICE, LESS CRYSTALS

$25. Freight and Packing extra. Rail or IPEC.

V.H.F. TRANSCEIVERS

TR1987 (TR1935) supersedes SCR522. Freq. range 115-145 Mc. Crystal locked, 21 valves comprising 6CQ5, 6AM6, EB91, 6AM5, TT15, QV04/7. Suitable for conversion to 144 Mc. band. (Still current for aircraft bands). Brand new condition, less crystals.

Price $30. Rail or IPEC.

ALARM BELLS

(Parachute type), 6 volt. Suitable for Burglar Alarms, etc. Complete with trip rope, etc.

Price $1.25. Postage 50c.

CITIZEN-BAND CRYSTALS

To suit Japanese Walkie-Talkies and Transceivers. P.M.G. approved. Freq. 27.240 Mc. (Tx), 26.785 Mc. (Rx).

HC6/U Subminiature, ½ in. pin spacing, 27.240 or 26.785 Mc. **$3.50 each or $6.50 a pair.**

HC18/U Miniature ¼ in. pin spacing, 27.240 or 26.785 Mc. **$3.50 each or $6.50 a pair.**

(HC18/U also available with flying leads)

Postage 10c.

TRIO COM. RECEIVERS

Trio Model 9R59DE, four bands covering 540 Kc. to 30 Mc., two mechanical filters for maximum selectivity. Product detector for SSB reception. Large tuning and bandspread dials for accurate tuning. Automatic noise limiter, calibrated electrical bandspread. S meter and BFO. 2 microvolts sensitivity for 10 db. S-N ratio.

Price $165

SPECIAL

6 TRANSISTOR POCKET RADIO

Complete and with leather carrying case and earphone. 12 months' guarantee.

Price $15. Postage 30c.

S.W.R. METERS, Model KSW-10

Specifications: Standing Wave Ratio: 1:1 to 1:10. Accuracy: Plus or minus 3% scale length. Impedance: 52 ohms and 75 ohms. Meter 0-100 DC microamperes. **Price $19** inc. tax.

WELL KNOWN GERMAN MAKE

RECORDING TAPE

In Round Plastic Pack.		Professional Quality	
3 in. 300 ft.	$1.65	5¾ in. 1200 ft.	$4.00
3 in. 450 ft.	$2.75	5¾ in. 1800 ft.	$6.25
4 in. 900 ft.	$4.30	5¾ in. 2400 ft.	$8.40
5 in. 600 ft.	$2.40	7 in. 1200 ft.	$4.20
5 in. 900 ft.	$3.50	7 in. 1800 ft.	$5.50
5 in. 1200 ft.	$4.50	7 in. 2400 ft.	$7.50
5 in. 1800 ft.	$7.20	7 in. 3600 ft.	$13.00

Tape Cups 8c each

RESISTORS

Ranging from 10 ohms to 4.7 megohms.

¼ and ½ watt .... 8c each

1 watt .... 10c each

Postage 10c.

CASSETTE CARTRIDGES

(PLUG IN)

C90 .... $3.75

C60 .... $2.75

Postage 10c.

CRYSTAL PICK-UP ARMS

MO13 Stereo, complete with Crystal Cartridge.

Price $4.25. Postage 20c.

GARRARD TURNTABLE BASES

Suit all Garrard Turntables. Finished polished teak, **$8.50.**

Also SRP22 Bases. Finished polished teak, **$8.50.**

Postage 40c.

MINI-LAB. METERS, Model SE-200

Specifications

Resistance Substitution: Resistors ½w. 5% tolerance, five values—100 ohm, 1K ohm, 10K ohm, 100K ohms and 1 megohm.

Capacitance Substitution: Five values—0.002 uF., 0.005 uF., 0.02 uF., 0.1 uF. (oil) at 600v.; and 10 uF. (electrolytic) at 350v.

R.F. Signal Generator: Frequency fixed at 455 Kc. (up to 700 Kc. adjustable). Output 35 mV. (approx.).

Audio Generator: Frequency 400 c/s. approx.). Output 35 mV. (approx.).

D.C. and A.C. Voltmeters: Meter movement 0 to 200 uA. Input resistance 4,000 ohm/volt. Four ranges: 0-15, 0-50, 0-150 and 0-500v. Accuracy plus or minus 5% of full scale.

R.F. Field Strength Indicator: Frequency range, 1 to 140 Mc. Antenna, 5 sections, 10-¾ inch.

Weight: 570 grams. Size: 6 in. (w.) v 2¾ in. (d.) x 3⅜ in. (h.).

Accessories: The unit comes with test leads, an antenna and battery in a dressing box.

Price $13. Postage 30c. Few only.

NEW VALVES

1R5	$1.42	plus tax	6BL8	$1.19	plus tax
1S2	$1.14	,, ,,	6BM8	$1.24	,, ,,
1S4	$2.22	,, ,,	6BR5	$1.12	,, ,,
1S5	$1.35	,, ,,	6BW6	$1.42	,, ,,
3S4	$1.35	,, ,,	6BX7GT	$2.22	,, ,,
3V4	$1.35	,, ,,	6CM5	$1.65	,, ,,
5A54	$1.05	,, ,,	6CW5	$1.08	,, ,,
5Y3GT	92c	,, ,,	6CW7	$1.22	,, ,,
6AD8	$1.08	,, ,,	6DQ6A	$1.65	,, ,,
6AE8	$2.88	,, ,,	6GW8	$1.31	,, ,,
6AL3	$1.18	,, ,,	6L6	$3.52	,, ,,
6AN7	$1.22	,, ,,	6M5	$1.00	,, ,,
6AN8	$1.89	,, ,,	6N3	88c	,, ,,
6AO5	$1.03	,, ,,	6R3	$1.18	,, ,,
6AR5	$1.68	,, ,,	6S2	$1.42	,, ,,
6AR7GT	$1.44	,, ,,	6SQ7	$1.96	,, ,,
6AU4GT	$1.18	,, ,,	6V6GT	$1.35	,, ,,
6AU6	$1.05	,, ,,	6X4	75c	,, ,,
6AV6	90c	,, ,,	9A8	$1.50	,, ,,
6BA6	$1.08	,, ,,	9U8	$1.35	,, ,,
6BD7	88c	,, ,,	12AU7A	$1.12	,, ,,
6BE6	$1.09	,, ,,	12AX7	$1.25	,, ,,
6BH5	$1.05	,, ,,	80	$1.15	,, ,,

All above Valves plus 25% Sales Tax

CLARION

TRANSISTOR BATTERY RECORDER

Specifications:

Battery Voltage: 6 volts.
Battery consumption: 0.1 amp.
Transistors: OC71, GFT21, OC74, GFT32.
Input Voltage: 200 microvolts.
Input Impedance: 200 ohms.
Output: 40 milliwatts (approx.).
Output Impedance: Blue socket, 1,000 ohms.
Output Voltage: 1 volt on 1,000 ohms.
Reel size: 3 inch.
Tape Speed: 3¾ inch/sec.
Frequency: 200-6,000 cycles.
Tape Running Time: 2 x 22 minutes on double play tape.
Microphone: Magnetic.

Brand New. **Price $15.75.** Postage 40c.

Power source: (a) four 1.5v. leak proof batteries, (b) 6 volt car battery, (c) 220v. with special Adaptor Unit (A & R PS64, Price $10.75).

TRANSISTORISED T.V./F.M. ANTENNA BOOSTER

MODEL 2W-33E

R.F. Unit with Remote Power Supply PS-1.

This model is a transistorised all-channel t.v. and f.m. amplifier and will perform for many years without requiring servicing, while its operating costs are practically nil. Specifications:

Model 2W-33E:

Voltage Gain: Over 12 db. for low channel.
Over 15 db. for high channel.
Frequency: Covers all channels.
Maximum Output: Over 75 db./300 ohms.
Input and Output: 300 ohm feeder.
Power requirements: A.C. 18v. 6 mA.
Size: 47 x 58 x 139 mm.
Weight: 225 gr.

Model PS-1:

Input Voltage: A.C. 230v., 50-60 cycle.
Output: A.C. 18v. 6 mA.
Size: 64 x 117 x 36 mm.
Weight: 300 gr.

Price $10. Postage 20c.

MO 65 METERS

New. Size: 3¼ inch, mounting hole 2½ inch.

All plus Postage 20c.

1 mA., 5 mA., 10 mA., 25 mA., 50 mA., 100 mA., 150 mA., 250 mA., 500 mA.	**$4.50**
1 amp. D.C.	**$4.50**
5 amp. D.C.	**$4.50**
10 amp. D.C.	**$4.50**
30-0-30 amp. D.C.	**$5.25**
15v. D.C., 30v. D.C., 300v. D.C.	**$4.50**
300 volts A.C.	**$5.00**

LATEST MINIATURE TYPE SILICON PLANAR

N-P-N TRANSISTORS

Type 325—replaces BF115, SE1010
Type 327—replaces BC108, 2N3565, SE4002
Type 328—replaces BC109, SE4010
All 75c each, or three for $2.00

Type 2N441 Transistor, $2.40

CALL BOOKS and LOG BOOKS

Price 75c each.

HAM RADIO SUPPLIERS

323 ELIZABETH STREET, MELBOURNE, VIC., 3000

Phones: 67-7329, 67-4286 All Mail to be addressed to above address

We sell and recommend Leader Test Equipment, Pioneer Stereo Equipment and Speakers, Hitachi Radio Valves and Transistor Radios, Kew Brand Meters, A. & R. Transformers and Transistor Power Supplies, Ducon Condensers, Welwyn Resistors, etc.

"AMATEUR RADIO"

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA FOUNDED 1910

MAY 1968
Vol. 36, No. 5

Publishers:
VICTORIAN DIVISION W.I.A.
Reg. Office: 478 Victoria Parade, East Melbourne, Vic., 3002.

Printers:
"RICHMOND CHRONICLE," Phone 42-2419.
Shakespeare Street, Richmond, Vic., 3121.

★

All matters pertaining to "A.R.," other than subscriptions, should be addressed to:

THE EDITOR,
"AMATEUR RADIO,"
P.O. BOX 36,
EAST MELBOURNE, VIC., 3002.

Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 5th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non-members of the W.I.A. should write to the Victorian Division, C/o. P.O. Box 36, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence; in addition, "A.R." should also be notified. A convenient form is provided in the "Call Book".

★

Direct subscription rate is $3.60 a year, post paid, in advance. Issued monthly on first of the month. February edition excepted.

CONTENTS

W.I.A. OFFICIAL BROADCASTS

NEW SOUTH WALES
VK2WI, Sundays, at 1100 hrs. E.A.S.T.
3595 Kc. a.m. 145.130 Mc. a.m.
7146 Kc. a.m. 146.000 Mc. f.m.
53.866 Mc. a.m. (53.950 Mc. f.m. proposed shortly)

VICTORIA
VK3WI, Sundays, at 1030 hrs E.A.S.T.
1825 Kc. a.m. 144.500 Mc. a.m.
3600 Kc. s.s.b. 145.854 Mc. f.m.
7146 Kc. a.m. 432.500 Mc. a.m
53.032 Mc. a.m.

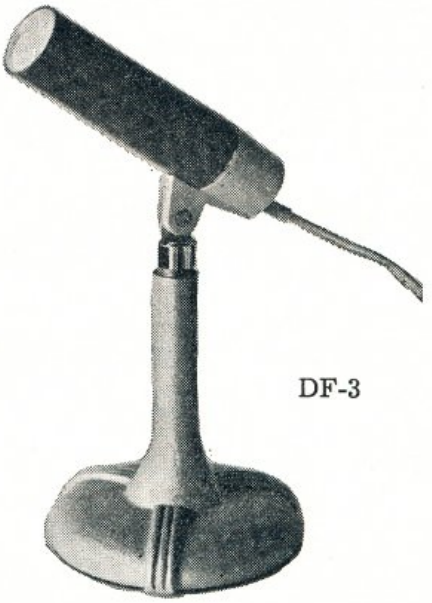
QUEENSLAND
VK4WI, Sundays, at 0900 hrs. E.A.S.T.
3580 Kc. 53.995 Mc.
7146 Kc. 144.36 Mc.
14.342 Mc.

SOUTH AUSTRALIA
VK5WI, Sundays, at 0900 hrs. C.A.S.T.
3.5, 14, 52 and 144 Mc. bands.

WESTERN AUSTRALIA
VK6WI, Sundays,

TASMANIA
VK7WI, Sundays, at 1000 hrs. E.A.S.T.
3672 Kc., and re-transmitted by representative stations on—
7146 Kc. 144.1 Mc.
53.032 Mc. 432.6 Mc.

FOSTER DYNAMIC MICROPHONES



DF-3

SPECIFICATIONS:

Output Impedance .... 50 ohms or 50K ohms
Effective output level .... —55 db. [0 db. = (one) 1V. Microbar]
Freuency response .... 50 to 15,000 c.p.s.

OMNI-DIRECTIONAL DYNAMIC:

Plastic Diaphragm.
Size: 4½" long, 1¼" diameter.
Cable: 12 ft. of P.V.C.
Swivel fits ⅝" 26 t.p.i. Stands.
Colour: TWO-TONE GREY.

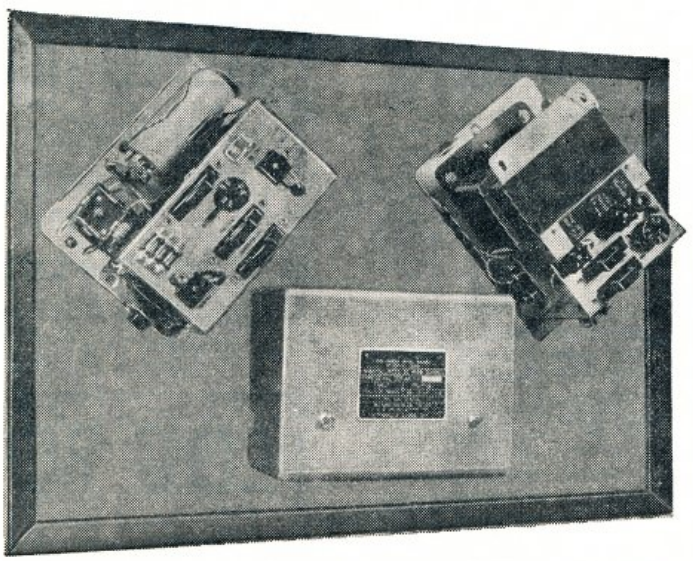
Retail Price 50K ohms: $9.60 + Sales Tax $1
Retail Price 50 ohms: $9.40 + Sales Tax 98c

A QUALITY PRODUCT FOR TAPE RECORDERS & P.A. USERS

Marketed by **ZEPHYR PRODUCTS PTY. LTD.**
70 BATESFORD ROAD, CHADSTONE, VIC., 3148 **Phone 56-7231**

Manufacturers of Radio and Electrical Equipment and Components

Agents: W.A.— D. K. Northover & Co.; S.A.— Neil Muller Ltd.; Tas.— Homecrafts (Tas.) P/L.; N.S.W.— Jacoby, Mitchell & Co. P/L.; Qld.— T. H. Martin P/L.



POWER RECTIFIER UNITS

(Regulated & Unregulated)

Trimax have developed, and manufacture a wide range of Power Rectifier Units both regulated and unregulated for use with telephone equipment. Output voltage 48V. with capacities from 400mA to 10A. Also static frequency changer units which produce 25c/s from 50c/s input.

Illustrated. Top left—Unregulated Power Supply—output 48V. 750mA.
Right—Frequency Changer output 75V., 20VA., 25c/s.

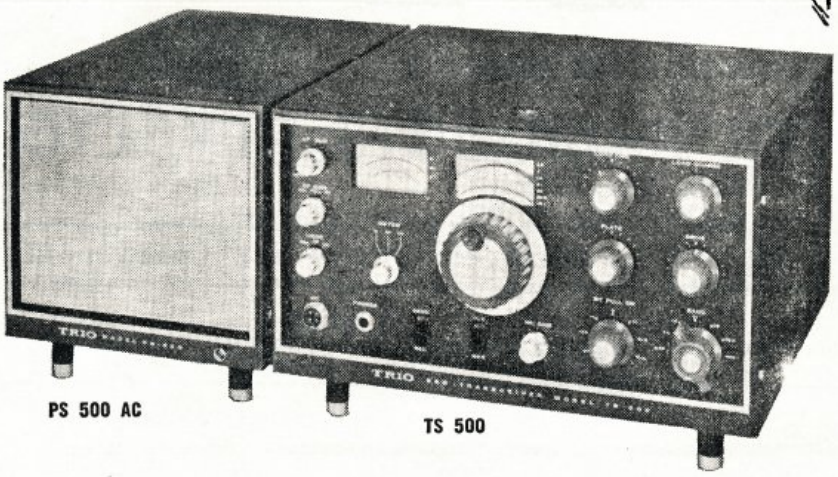
L M ERICSSON PTY. LTD.
"TRIMAX" DIVISION
FACTORY: CNR. WILLIAMS RD. & CHARLES ST., NORTH COBURG, VICTORIA. 'PHONE: 35-1203 . . . TELEGRAPHIC ADDRESS: "TRIMAX" MELB.

LM 52

TRIO

SSB transceiver

200 watts PEP—7 Bands—A M & C W and Power Supply and Speaker Unit



PS 500 AC

TS 500

SPECIFICATIONS:

Frequency:

80m Band	3.5-4.0 MHz
40m Band	7.0-7.5 MHz
20m Band	14.0-14.6 MHz
15m Band	21.0-21.6 MHz
10m A Band	28.0-28.6 MHz
10m B Band	28.5-29.1 MHz
10m C Band	29.1-29.7 MHz

Communication Method: SSB (A3j) AM (A 3H) CW (A1)

Maximum Input Power: (Xmitter final stage) 200W (PEP)

Standard Input Power: (Xmitter final stage) 180W (PEP) 120W on 28 MHz band only

Antenna Input Impedance: 50-75 ohm

Carrier Suppression Ratio: More than 40 dB

Single Side Band Ratio: More than 40 dB

Mic. Input Impedance: High impedance (dynamic or crystal mic. recommended)

Xmitter Audio Frequency Characteristics: 300-3,000 Hz (-6 dB)

Receiver Sensitivity: 1μV S/N 10 dB (14 MHz)

Receiver Selectivity: 2.7 kHz (-6 dB) 5.0 kHz (-55 dB)

Spurious Rejection Ratio: More than 45 dB

Image Ratio: More than 60 dB

Undistorted Power Output: More than 1W

Receiver Output Impedance: SP 500 ohm PHONE 8 ohm

Power Consumption (using PS-500AC): 450W (At maximum power output) 250W (Receiving Mode)

Tubes and Transistors used: 17 TUBES, 3 TRANSISTORS, 15 DIODES

Dimensions: W: 13⅛"; H: 8⅛"; D: 11⅛"

Weight: 17.6 lb

FOR/FOA SYDNEY: TS 500, $480.00; PS 500 AC, $96.00

CONSULT YOUR LOCAL RADIO DEALER, OR

MAIL THIS COUPON *today*

Please forward free illustrated literature and specifications on Trio equipment.

Name.....

Address.....

Weston electronics PTY LTD

SYDNEY, AUSTRALIA

(A unit of Jacoby Mitchell Holdings Ltd.)

376 EASTERN VALLEY WAY, ROSEVILLE, N.S.W.
Cables and Telegraphic Address: 'WESTELEC,' Sydney. Phone: 40 1212

LOW DRIFT CRYSTALS

☆

1.6 Mc. to 10 Mc.,
0.005% Tolerance, **$5**

☆

10 Mc. to 18 Mc.,
0.005% Tolerance, **$6**

☆

Regrinds $3

THESE PRICES ARE SUBJECT TO SALES TAX

SPECIAL CRYSTALS: PRICES ON APPLICATION

MAXWELL HOWDEN

15 CLAREMONT CRES., CANTERBURY, E.7, VICTORIA

Phone 83-5090

LOG BOOK

IS NOW AVAILABLE

Larger, spiral-bound pages with more writing space.

Price 85c each
including Postage

Obtainable from your Divisional Secretary, or W.I.A., P.O. Box 36, East Melbourne, C.2, Victoria.

A PRESIDENT RETIRES!

This story begins in 1950 when a member of the Victorian Division rose to his feet at a general meeting and stuck his neck out by challenging your scribe, then Federal Vice-President, to do some work on behalf of his fellow Amateurs.

Unfortunately for the member concerned he picked an inopportune moment to issue his challenge.

Reason, the Federal Secretary, Major W. T. S. Mitchell, was about to depart for England on a tour of duty in an Army establishment. Federal Executive was looking for a new Secretary, here was a ready-made victim. Hence, counter challenge was issued—result, one George Maxwell Hull entered into a life of toil and self sacrifice.

During the first six years of his servitude he bore the Secretary's yoke, patiently and well, suffered the usual amount of frustration, received the usual amount of abuse, which he accepted philosophically and came up for more.

In order to appreciate fully the value of the service rendered to members by the Federal Secretary, particularly before the days of paid assistance, it is necessary to bear in mind that in 1950 the membership was over two thousand —spread over eight call areas, administered by six Divisional Councils.

This meant, and still means, that in addition to maintenance of communications with the International Radio Union (I.A.R.U.) and its member organisations, the Postmaster-General's Department, and other relevant Government Departments, the Secretary has to satisfy the demands of six Federal Councillors, six Divisional Secretaries and individual members. Furthermore, he must handle the correspondence associated with the co-opted officers filling the posts of Contest, Award, QSL Managers and carrying out other duties **—all in an honorary capacity!**

So much for the tasks undertaken by the said G. M. Hull during his initiation period. Tasks which he performed well and diligently, emerging a sadder and wiser man, still undeterred, however.

No doubt his earlier training in the R.A.A.F. and the advice contained in that old motto, "Nil Basturdum Carborundum" aided considerably in his acceptance of the vicissitudes of his chosen path.

MAX HULL, VK3ZS

Max rose through the rank of Federal Vice-President to Federal President, without any increase in emolument, a position which he has successfully filled for a total of seven years. During this period he has been elected Honorary Life Member of the Victorian Division (1962).

Had the distinction of chairing Federal Conventions in every State of the Commonwealth.

Been a member of the three-man team representing the Institute at the television hearings in 1956.

Seen W.I.C.E.N. grow from infancy to its present stature.

Was an active member of the Federal Executive which brought about the acceptance of Institute's representative as a member of the Australian Delegation to Geneva I.T.U. Conference in 1959, at which the late John Moyle served us so well.

With other members of Federal Executive arranged with the P.M.G's Department the contract enabling the Institute to produce annually an up-to-date "Australian Call Book". As well as obtaining many other concessions for the Australian Amateur.

The completion on acceptance of the Uniform Divisional Constitution, commenced in the 1933-1939 period, took place during his term of office as Federal Secretary.

Witnessed the introduction of new techniques, such as s.s.b. and Moonbounce and aided in the formulation and acceptance of rules governing the Amateur operations in these fields.

Recorded the deaths of three Federal Officers: John Moyle (ex I.T.U. Liaison Officer), Gordon Weynton (ex member of Executive and Federal Awards Officer), and Alf Kissick (Federal Awards Officer at the time of his death).

This story would be incomplete unless the field of service expected from and given by Max as Federal President was outlined.

The Federal President, in addition to overseeing all the tasks of Federal Officers, is responsible for maintaining good relations with the authorities and associated societies. He is also responsible for the public image and initiating action to improve the lot of the Australian Amateur.

As an active member of the Institute for nigh on forty years, the writer can attest to the fact that based on eighteen years' association with Max, during the whole term of the latter's office, that the Institute has gained much from the enthusiasm and devotion to duty that Max has brought to the offices he has occupied.

You will all undoubtedly agree that it is fitting that his last year of office as Federal President has become noteworthy for the success such achieved in the finalisation of such matters as the re-writing of the "Handbook for Operators of Radio Stations in the Amateur Service".

The completion of plans for Federation of the Institute under a new Constitution. A view that was first expounded in the 30's and received a further fillip when the Uniform Divisional Constitution was accepted.

The growth of membership to over five thousand.

The holding of the first Region III. Conference in conjunction with the (1968) Federal Convention in Sydney.

Past and present members of the Federal Council and Executive who have had the pleasure of serving with George Maxwell Hull are proud of their association with him and the work achieved during his term of office and we are sure all members will join with us in expressing gratitude for his service and express the hope that he will continue to serve the Institute in some less arduous capacity.

—G. GLOVER, Federal Historian.

FEDERAL COMMENT

An Introduction to the Field Effect Transistor

G. S. BYASS,* VK3ZWA (Ex-VK6ZDB)

THE Field Effect Transistor, or FET, has only recently started coming into the consumer electronics field and their prices are now becoming competitive with conventional transistors. A number of articles about FET's have appeared recently in overseas Amateur Radio publications and at least one Amateur receiver, the Davco DR30, is employing these devices.

The purpose of this article is to give an introduction to the Field Effect Transistor, their characteristics and their uses. It is not intended to delve particularly deeply into the theory of their operation as there are a number of good articles on this subject (Ref. 1 to 7), so the theory given in this article will be restricted to a minimum. The operational characteristics of FET's will be compared with those of conventional transistors and vacuum tubes to enable an appreciation of the advantages and disadvantages of the various devices to be gained.

The theory of the field effect transistor was described by Shockley in 1948 but it was not until about 1960 when semiconductor manufacturing techniques had reached a relatively high state of development that it was possible to produce the FET commercially. In a similar fashion to the development of the conventional transistor, the first FET's were low frequency devices and their prices were high. However, this position is rapidly changing and units capable of v.h.f. operation are now readily available and comparatively cheap.

THEORY OF OPERATION

A pure semiconductor material is characterised by a low conductivity because the molecular structure gives rise to very few "charge carriers" within the material. The two most commonly used semiconductor materials are germanium and silicon, and in practice the pure material is "doped" with carefully controlled amounts of impurities to provide the required "charge carriers". A "charge carrier" is a term for either an excess electron or a shortage of an electron within the semiconductor material; a lack of electrons gives rise to P-type semiconductor while an excess of electrons results in an N-type material.

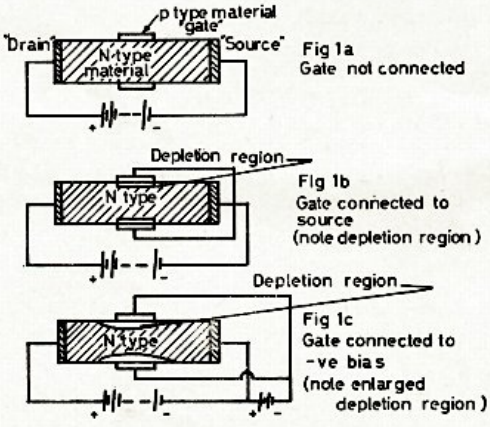
The electrons in the N-type and the holes (or lack of electrons) in a P-type semiconductor material are referred to as the "majority" charge carriers, however in practice there are always present a few carriers of the opposite type and these are referred to as "minority" carriers. Conventional transistors as we know them, make use of both types of carriers and are hence known as "bipolar" transistors. In the case of the FET only the majority carriers are required and hence the FET is sometimes referred to as a "unipolar" device.

* Flat 14, 274 Domain Rd., South Yarra, Vic., 3141.

In the FET the presence of minority carriers cause undesirable leakage currents and every effort is made to minimise the number of minority carriers present in the material.

The conventional, or "bipolar", transistor relies for its operation on a current flowing between the base and emitter giving rise to an amplified current flow between the collector and the emitter, hence they are referred to as current amplifying devices. The base-emitter looks like a forward biased diode while the collector-emitter looks like a reverse biased diode in the absence of any base current flow. The ratio of collector current to base current is known as the current gain of the device.

The field effect transistor can be imagined as a bar of semiconductor material with a metallic contact at each end, one of these contacts will be known as the "source" and the other as the "drain". Because the contacts are metallic, there is no rectification taking place and the bar of material merely acts like a resistor. Assume that the semiconductor bar is N-type (i.e. has been doped with impurities giving rise to an excess of electrons) and that mid-way between the drain and the source some P-type material is joined to the bar. This will be referred to as the "gate". (See Fig. 1a).



If a voltage is applied between the drain and the source, leaving the gate with no connection at this stage (+ve on the drain and —ve on the source), a current will flow through the device, the magnitude of the current depending on the applied voltage and the resistance of the material.

Assume that the gate is now connected to the source (as in Fig. 1b), and it will be found that drain current will drop sharply and that no current is flowing in the gate circuit. The junction formed by gate and the bar is in actual fact a reverse biased diode although the reason for the presence of the reverse bias is not readily apparent. However, by considering the voltage gradient between the drain and the source it can be seen that because the gate is between the drain and source, the voltage of the semiconductor bar near the gate must be positive with respect to the source.

If the voltage on the drain is +20 volts with respect to the source, and the gate is midway along the bar, then the voltage in the region of the gate will be 10 volts positive with respect to the source. Thus the PN junction formed by the gate and the bar has a reverse bias of 10 volts and the only current flowing is a very small amount of leakage current which plays no part in the operation of the FET and is undesirable as it lowers the input resistance of the device.

The reason for the drop in drain current is that in the area immediately adjacent to the reverse biased junction formed by the gate there is a "depletion" region formed where no negative charge carriers can exist. As all the current flowing through the device is conveyed by the negative charge carriers and must pass along the bar past the gate area, the reduced area available causes an increased drain-source resistance and hence a reduced current flow. The size of the "depletion" region varies according to the reverse bias on the gate and hence the current flow is dependent on the gate-source voltage for a given applied drain-source voltage (see Fig. 1c). If the reverse bias on the gate is made large enough, it is possible to cut off the drain current completely.

The geometry of an actual device is not the same as this example but the end result is similar and it is easier to visualise the operation this way. There are a number of different types of FET's on the market ranging from audio to v.h.f. types, triodes and tetrodes as well as junction and metal oxide types. The most common is probably the triode junction FET or JFET similar to the type just described although P-channel and N-channel types in both silicon and germanium material are available. These devices are quite rugged and require no more care in handling than conventional transistors.

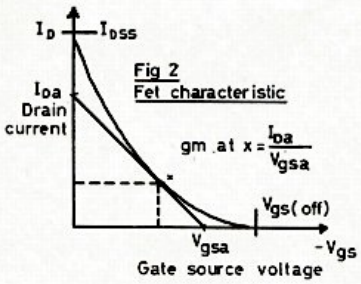
The metal oxide FET or MOSFET is constructed differently from the junction type as the gate is formed by a metallic layer over the semiconductor bar or channel but separated by a very thin insulating layer of oxide. By this means the input resistance of the device is extremely high, however the insulating layer between the gate and the channel can easily be punctured by high voltages on the gate. The most likely occasion that this insulating layer can be punctured is when the device is being handled before being inserted in the circuit and even the small electrostatic charge applied to the gate while handling the device with the fingers can cause a voltage high enough to break down the gate insulation because of the extremely high gate resistance (up to a million megohms) and the small capacitance of only a few pico-

farads. Hence the leads of the device should be shorted together until after it is inserted into the circuit when the circuit component leakages and capacitances will protect the FET from damage.

Recently some FET's have been produced as tetrodes and these, similar to tetrode vacuum tubes, employ two control elements, or gates, as they are referred to in the case of the FET. The second gate can be used as a control or signal input electrode, but it is usually connected to the source as this results in decreased feedback capacitance which is highly desirable for stability purposes in r.f. amplifiers.

CHARACTERISTICS

The characteristics of a FET are very similar to those of a pentode vacuum tube in that the drain current for a given value of gate bias remains relatively constant over a wide range of applied gate-source voltage. The FET is an almost perfect square-law device which means that the graph of drain current to gate bias follows a square-law curve or a parabola with the transconductance (slope of the curve) increasing with decreasing bias and hence increasing drain current (see Fig. 2). This square-law characteristic means that the harmonic distortion in a FET is essentially second harmonic only and when correctly biased they will give results at least equal to and in most cases far better than conventional transistors or vacuum tubes as regards intermodulation and crossmodulation performance. When operated at the lower portion of the characteristic curve the operation as a mixer is very good because the square-law characteristic ensures that the only unwanted frequencies present after the mixing process are the second harmonics of the mixing frequencies and no other intermodulation byproducts appear.



At low frequencies the input impedance of a FET is very high and almost purely resistive, but as the frequency increases the effect of the gate capacitances start to take effect and the input impedance falls and becomes increasingly reactive in nature. The FET also has the advantage that it is theoretically capable of a lower amplifier noise figure than either vacuum tubes or bipolar transistors and even at this early stage in their development it is only in the u.h.f. region that their performance is surpassed by bipolar transistors.

So far the FET appears to be considerably superior to tubes or conventional transistors, but it is not as simple as all that because there are some inherent disadvantages in the currently available devices. The first of these is the relatively high (2 to 4 pF.) drain-gate capacitance of the junction FET which means that in common source amplifiers at high frequencies the device becomes unstable. The feedback capacitance in the MOSFET can be somewhat lower than that for the JFET but it can still be a problem in some circuit applications where, similar to the grid-plate capacitance of a triode, it causes positive feedback in certain circuit configurations and hence high-frequency instability. A second difficulty is the effect of increasing temperature which causes a rise in the gate leakage and a decrease in drain current which can cause difficulties when d.c. coupling or d.c. amplification is required. These effects are not, in general, as severe as with bipolar transistors and in any case the majority of Amateur uses employ a.c. coupling between stages where the variations in individual stages is of relatively small importance.

Another disadvantage with the currently available FET's is their wide tolerance spread—rather like the early bipolar transistors—and this means that either the circuit must be designed for the worst-case device and consequently considerable negative feedback to allow for the better devices or the circuit values must be tailored to suit the individual FET used. For example, the transconductance of the TIS34 silicon N-channel junction FET is stated as a minimum of 3500 and a maximum of 6500 umhos with the drain current at zero bias varying between 4 and 20 mA. No doubt better manufacturing and sorting techniques will be developed soon to minimise these wide variations between devices with the same type number.

FET PARAMETERS

Some of the more important parameters used for describing FET's are shown in Table 1 together with their vacuum tube equivalents where these are applicable.

In high frequency operation a useful comparison between different devices is given by the Figure of Merit, $f_{co\ max}$, which is the frequency at which the power gain is unity. This is given by the following:

$$f_{co\ max} = \frac{Y_{fs}}{2\pi C_{iss}}$$

(This is similar to the case of conventional transistors where the Figure of Merit is designated f_t.)

APPLICATIONS

Amplifiers.—As shown in Table 2, there are three FET amplifier modes—common source, common gate and common drain, corresponding to grounded cathode, grounded grid and cathode follower modes for vacuum tubes. Of these three, the most often used is the common source mode as this gives high voltage gain together with a high input impedance. A comparison of the characteristics of the various amplifier modes is given in Table 2.

In Amateur service the FET, in its present stage of development, can be used in the majority of low power applications from audio frequencies to the v.h.f. region. At present FET's capable of high power output are not readily obtainable in either the audio or radio frequency regions, but this is one of the few areas where they cannot be used in the place of conventional transistors or vacuum tubes.

The main fields of use for FET amplifiers in Amateur service are probably as r.f. and i.f. amplifiers in receivers where low noise and freedom from cross-modulation are required and for low level audio pre-amplifiers for both receivers and transmitters. The FET employs similar supply voltages to bipolar transistors with operation possible with very low drain currents, in fact with MOSFET's, the voltage gain is a maximum when the drain current is a minimum and operation is possibly with only a few microamps. of drain current.

In r.f. amplifiers it is usual to use the common source mode as this gives a slightly lower noise figure and higher gain than the common gate configuration, however as previously mentioned, neutralising is usually needed at the higher frequencies. Thus if noise figure

FET Parameter	Tube Equivalent	Description
I_{GSS}	—	Gate Cut-off Current, i.e. the leakage current flowing in the gate with the gate reverse biased.
I_{DSS}	—	Zero Gate Voltage Drain Current, i.e. the drain current flowing with zero gate bias.
$V_{GS\ off}$	—	Gate-Source Cut-off Voltage, i.e. the reverse gate bias that cuts off the drain current flow.
$\lvert Y_{fs} \rvert$	gm	Small Signal Common Source Forward Transfer Admittance.
$\lvert Y_{os} \rvert$	—	Small Signal Common Source Output Admittance.
C_{iss}	C_{input}	Common Source Short Circuit Input Capacitance.
C_{rss}	C_{gp}	Common Source Short Circuit Reverse Transfer Capacitance.
$V_{BR\ GSS}$	—	Gate-Source Breakdown Voltage.

Table 1.

is not important and the lower gain can be tolerated the common gate mode is often used. A further alternative is the use of cascode operation which gives a slightly higher gain than the common source stage and in most cases neutralising is avoided, however two FET's are required instead of one.

The input impedance of a common source r.f. amplifier decreases with increasing frequency because of the gate-source and gate-drain capacitances and at 100 Mc. the input impedance is in the order of 10,000 ohm for a TIS34 (the common source output impedance for the same transistor and the same frequency is about 20,000 ohm).

gate has to be forward biased, to a value depending on the device geometry, before gate current will flow. If it is desirable to have "gate current" flow, to stabilise the oscillator amplitude for example, an external diode between gate and source can be used.

There is probably little need to use the FET in a crystal oscillator circuit unless the requirements are particularly stringent as conventional transistors are usually quite adequate for the job and are usually cheaper. It is in the field of self-excited oscillators or v.f.o's where the FET is useful.

The high input impedance of the FET means that the tuned circuits are not "loaded" as much as would be the case with bipolar transistors and the small amount of heat produced means that temperature compensation is less of a problem than with vacuum tube v.f.o's. The capacitances in the bipolar transistor depend on both temperature (both positive and negative coefficients depending on the actual temperature) and on the collector current flow. This means that full compensation is particularly difficult and about all that can be done is to isolate the transistor as far as possible from the tuned circuits. On the other hand, capacitance compensation in the case of the FET is somewhat easier as the capacitance has a positive coefficient with temperature and is almost independent of current flow through the device. Thus capacitance compensation is a practical proposition in the case of FET's.

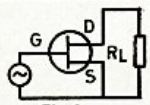
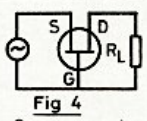
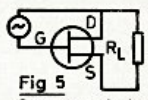
	Common Source	Common Gate	Common Drain
	 Fig 3 Common source	 Fig 4 Common gate	 Fig 5 Common drain
Input Impedance	High	Low	High
Output Impedance	Moderate	High	Low
Voltage Gain	More than 1	More than 1	Less than 1
Phase Inversion	Yes	No	No
Equiv. Tube Circuit	Grounded Cathode	Grounded Grid	Cathode Follower
Equiv. Trans. Circuit	Common Emitter	Common Base	Emitter Follower

Table 2.—FET Amplifier Configurations.

Mixers.—When two signals of frequency f1 and f2 are mixed together in an ideal mixer (unbalanced type) the frequencies appearing in the output are the original frequencies together with their sum and difference, i.e. f1, f2, (f1 + f2) and (f1 — f2). In conventional mixers there are also present harmonics of the mixing frequencies together with intermodulation byproducts of the form (1 + n) f1 — n f2, or (1 + n) f2 — n f1. The FET, because of its square-law characteristic, approaches the ideal and the only significant spurious frequencies generated are the second harmonics of the mixing frequencies, i.e. 2f1 and 2f2. The gate voltage range, however, must be limited to that portion over which the square-law characteristic holds good and a value of bias giving a drain current of $\frac{1}{4}$ I_{DSS} is a good starting point.

The mixer transconductance is proportional to the oscillator injection voltage, hence by varying the injection voltage the mixer gain can be altered thus giving a further stage to which a.g.c. can be applied. When the injection voltage is small the signal voltage can occupy the entire range of permissible gate voltage which is desirable as maximum gain reduction is required when the signal amplitude is very large.

Oscillators.—Because of the similarity between the characterstics of FET's and triode vacuum tubes the oscillator circuits are very similar except that the analogy between gate current and grid current is not followed. For example, gate current flow is not possible in the case of the MOSFET as the gate is insulated by a layer of oxide from the channel material. The junction FET

REFERENCES

1. "Understanding Field Effect Transistors," H. Hyder, "CQ," August, September, October, 1966.
2. "The Field Effect Transistor at VHF," U. Rohde, "Wireless World," January 1966.
3. "N-Channel FET's: RF Applications," J. McKay, "73 Magazine," May 1966.
4. "Using the FET in an Audio Preamp," A. Leo, "Electronics Australia," January 1967.
5. "The Germanium Planar FET—A New Device for Radio Applications," Journal of the Audio Engineering Society, April 1967.
6. "Designing with Low Noise MOSFET's," G. Luettgenau and S. Barnes, "Electronics," 14th December, 1964.
7. "The Field Effect Transistor as a High Frequency Amplifier," P. Kolk and I. Maloff, "Electronics," 14th December, 1964.

SSB

Sub-Editor: PHIL WILLIAMS, VK5NN
37 Winns Rd., Coromandel Valley, 5051

ASYMMETRICAL CRYSTAL FILTERS

Although articles written in this series several years ago were designed to assist with the design and construction of phasing exciters (and I have been referred to in conversations on the air as "The Phasing Man") I wish to make it known that I have had more filters in my shack than many have ever seen. Some have been the result of weeks of abortive experiment to make them symmetrical, but have steadfastly resisted all attempts to squash them into shape. Even some of the "bought" filters have shown a goodly amount of difference in the height of the upper and lower peaks until they were properly terminated, often with quite a deal of capacitive termination.

Many of the early FT241 "surplus crystal" filters, as described for the "Edmunds" (W1JEO) exciter used purposely asymmetrical filters, using shunt crystals to increase the attenuation of the unwanted sideband, and did it very effectively, too. The filter I made used crystals around 430 Kc. because the 80 metre band falls between the 8th and 9th harmonic of this frequency, and for no other reason. Channels from 30 to 35 are suitable.

The method of making and adjusting such filters is described in about three articles in the earlier editions of the A.R.R.L. Sideband Handbook and a filter of this type is used in the "Sideband Package" transmitter which is included in the latest edition of the book. There is no need for further treatment here but the means used to change sidebands by heterodyning with the required signals will be described.

There have been similar filters made at higher frequencies, viz. about 5 Mc., but they have been special designs. The classical example of such a filter is that used by Hallicrafters in their HT32 transmitter, which still sounds as good as anything one can hear on the bands—perhaps better than many of the modern narrower filters.

I have heard of a filter designed by some VK3s which uses six crystals all on the same frequency (exactly) and of the same type and construction. Although I have suitable crystals available, I have not achieved a 100% filter yet and may have to de-tank some of the crystals to reduce their capacitance. I am anxious to avoid this if possible, and still have a few more measures to be tuned. A VK7 has a filter working, so I must not give up yet. I am told that suitable crystals in the 4 to 6 Mc. region can be obtained from Taxi systems where many crystals on the same frequency are extracted from scrapped mobile f.m. transceivers. Your v.h.f. boys who buy these sets for net operation may be able to put you onto these. It is a good idea to select a frequency which does not place harmonics in one of our bands. My crystals are on 4456 Kc., which misses all bands by a reasonable amount.

Those FT243 crystals are not always suitable unless you can find matching sets from the same maker in the "all-bakelite" holders, since the metal name plates can cause bother in filters. The plated FT243 crystals should be avoided, too, as their capacitance is high and they are not easily altered. They cannot, of course, be etched.

The system used to produce upper or lower sideband in the "Sideband Package" is shown in Fig. 1. The original upper sideband signal is mixed in one case with the fourth harmonic of the 430 Kc. carrier crystal to produce upper sideband again on the 5th harmonic at 2150 Kc. In the second case beating back from the sixth harmonic produces lower sideband, also on the 5th harmonic.

This output frequency has then to be mixed with other crystal and tuned oscillators to place the output sideband in an Amateur band.

Figs. 2 and 3 show two schemes for mixing the sideband signal with a v.f.o. on the final frequency, in this case, in the 80 metre band. Unfortunately, in Scheme "A" it is necessary to mix the sideband twice after the filter, and levels in the mixers must be watched carefully to avoid unwanted signals. The v.f.o. must be well shielded to avoid "feed-through" and the final balanced modulator must balance well.

Scheme "B" mixes the v.f.o. and carrier crystal to produce the desired upper or lower mixing signal, but the sideband is mixed only once, and the v.f.o., if correctly screened, is less likely to feed through.

The circuits to achieve all of this may get complicated, but in these days of cheap FETs and small components to go with the transistor age techniques, the whole upper/lower sideband generator can be built into a compact unit. Transistor v.f. oscillators seem to radiate less than valve counterparts too.

For the balanced mixers in transistorised equipment, I have found the Collins 4-diode circuits hard to heat, but the balanced FET types using Motorola MPF102s or their 2N3819 equivalents are supposed to be excellent in h.f. exciters. Noise is low and they balance out the carriers better than the equivalent transistor modulators and mixers.

Since very low signals must be used in mixers for best linearity, the final signal requires quite a bit of "lift," and what better to do it these days than one of these integrated circuits now being used to give all the gain required in the i.f. amplifiers of modern f.m. radio transceivers. My own experiments with 9.0 Mc. amplifiers using the uA703 integrated circuits are promising, and will probably be included in my i.f. cards in the transceiver at VK5NN.

I sometimes despair of ever completing this transceiver, but as a transistor "training test-bed" it has enabled me to find out a great deal about transistors—sometimes in advance of the younger and cleverer fellows at the "salt mines".

As a final word of warning with transistors—watch your polarities. When checking polarities make certain the red lead on the multimeter is in the positive terminal hole on the case, and the

(Continued on Page 11)

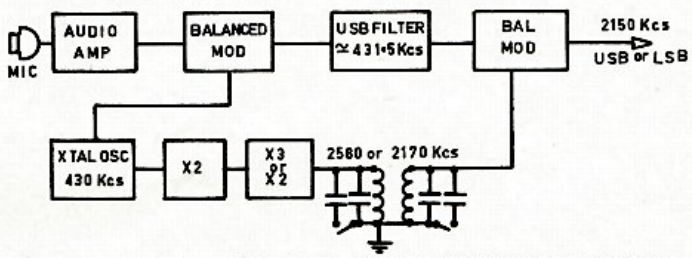


FIG.1. USB. OR LSB. GENERATOR AS USED IN THE "SIDEBAND PACKAGE."
(Output on F osc. x 5. Fixed Frequency.)

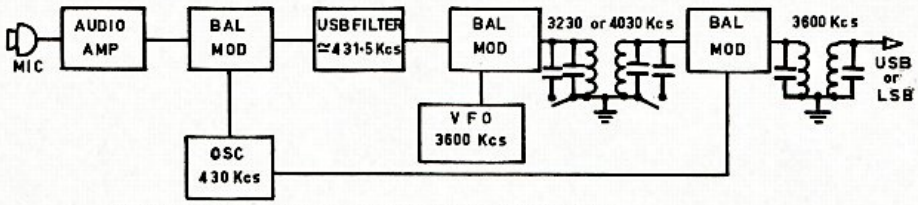


FIG.2. SCHEME "A" MIX USB. TWICE TO FINAL FREQUENCY.

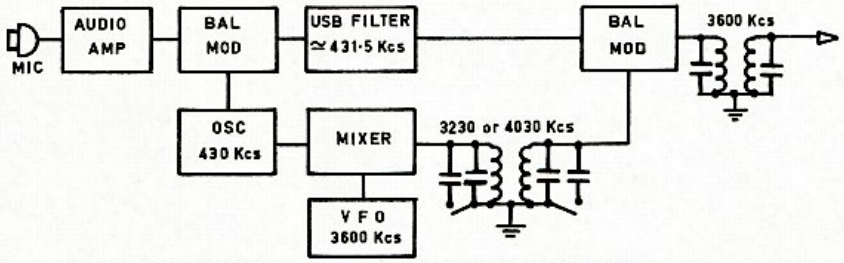


FIG. 3. SCHEME "B" USB. MIXED ONCE TO FINAL FREQUENCY.

RADIO AUTOMATIC TELETYPE MADE EASY

D. R. STOKES, VK2ZPM*

GENERAL PRINCIPLES

Two main systems exist. They are FSK, Frequency Shift Keying, and Two Tone Transmission.

FSK.—In this system the transmitter carrier frequency can be shifted by a specified amount either side of the centre frequency by the operation of the teleprinter keyboard. This shift is usually 425 cycles either side, giving a total shift of 850 cycles. When the signal is being received, the receiver b.f.o. is used to detect this shift in carrier, the resultant two tone signal is then used to key the teleprinter. These tones are usually 2125 cycles, for a mark and 2975 cycles for space.

Two Tone.—In this, the transmitting terminal has a two tone oscillator and the frequency of this is controlled by the operation of the teleprinter keyboard. The oscillator is an audio type set to 2125 cycles and shifted to 2975 cycles by the operation of the keyboard contacts. This tone is then amplified and fed into the modulator of any transmitter that is capable of transmitting audio signals. In this case the b.f.o. in the receiver is not required as the audio tones are already present and fed directly into the converter.

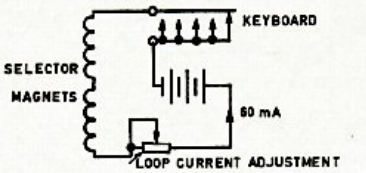


FIG. 1. SIMPLE LOOP CIRCUIT ONE TELEPRINTER

MACHINES

Many different types of teleprinter exist, the more popular types being made by the American Teletype Corporation. These are Models 14, 14E, 15, 19 and 28. The Model 14 Teleprinters use an 11/16 inch paper tape and the message is printed on this. In some Model 14s, coded holes are also punched into the tape so that the message may be re-transmitted.

The Model 15, 19 and 28 Teleprinters are page printers similar to an electric typewriter.

The teleprinter consists of an electric motor which actually causes the machine to function, and a selecting mechanism that switches the machine from mark to space. Each character is made up of a number of mark and space impulses, which go to make up the five-unit teletype code. The motor requires a.c. while the selector magnets require almost any voltage between 24 volts and 100 volts d.c. with 60 mA. flowing.

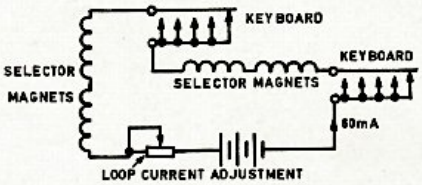


FIG. 2. LOOP CIRCUIT USING TWO TELEPRINTERS.

The selector magnets are actually two coils that can be connected in series or parallel. For series operation, 60 mA. is required, while only 30 mA. is required when they are in parallel. I have found that the 60 mA. operation is more suitable for better copy.

As each machine is fitted with an electric motor, these must always be operating at the same speed, in other words sending and receiving teleprinters set to the same speed.

Most printers are fitted with a keyboard. When a key is depressed contact is made and a definite teletype code is set up. The keyboard is mechanically coupled to the motor but not electrically. The keyboard contacts are not directly connected to the selector magnets, but must be placed in series with them, to operate the machine on a local loop.

THE CONVERTER

The two tone output from the receiver is fed to a 12AX7 limiting amplifier, via a matching transformer. The 12AX7 is cathode coupled, limiting at about minus 4 dbm. This is coupled to a 6C4 which amplifies the tones before application to the discriminator filter. The filters are tuned to exactly 2125 cycles and 2975 cycles. The incoming tones are fed across both filters, but only the required tone will be allowed to pass, as the filters will have a low impedance to all other frequencies present. The output from each filter is passed on to a voltage doubler, consisting of two diodes in each side. These can be either OA85, OA5 or similar, the d.c. voltage being developed across the 470K ohm diode load resistor in the grid circuit of the 12AU7. This d.c. will cause one side of the valve to conduct, thus causing the polar relay in the anode circuit to move to that side. Both sides of the discriminator will operate in the same manner.

A normal reverse switch is fitted between the output of the filters and the diodes so that the mark and space frequencies can be reversed. In the cathode of the 12AU7 a variable resistor is fitted so that the converter can be balanced and each side will draw the same current for mark and space. Another variable resistor is fitted between the anodes of the 12AU7, this is the relay bias and is set so that the two coils of the relay will be balanced. When this is being adjusted, the two cathodes of the 12AU7 are connected together and earthed via a 4K ohm resistor. Once the bias is set it need not be adjusted again unless a new relay is fitted. The balance potentiometer is normally used to balance the mark and space signals.

TRANSISTOR KEYER

The contacts of the polar relay can either key a 100 volt d.c. loop to operate the teleprinter, but arcing of the relay contacts will occur. This also

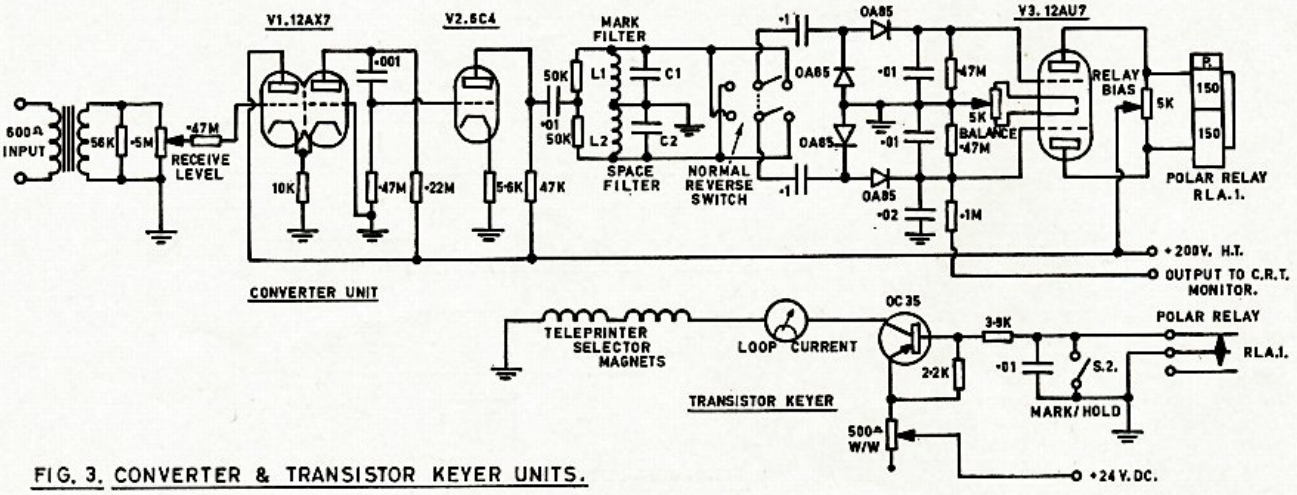


FIG. 3. CONVERTER & TRANSISTOR KEYER UNITS.

* Flat 712, 55 Morehead St., Redfern, N.S.W., 2016.

causes radio interference. A more suitable system is to use the relay contacts to key the base circuit of a transistor, where there is little current, and using the transistor as the switch. The transistor has to be able to sustain the 60 mA. loop current, OC35, OC36, etc., were found to be suitable.

24 volts d.c. is used to provide the local loop circuit via the transistor switch. The loop current control is set for 60 mA. on a mark. It will be found that a small current will flow in the loop on space but it will not be enough to upset the keying pulses.

TWO TONE OSCILLATOR

This consists of a 12AT7 oscillator on 2975 cycles, using a centre taped coil of about 88 millihenries and capacitors to set the frequency. A "dry shift" keying circuit using two diodes (OA85, OA5, etc.) connect extra capacity across the coil when the keyboard contacts are closed, thus lowering the frequency to 2125 cycles. The 0.03 uF. capacitor across the coil is adjusted for the 2975 cycles tone, the second half of the valve acting as a straight audio amplifier.

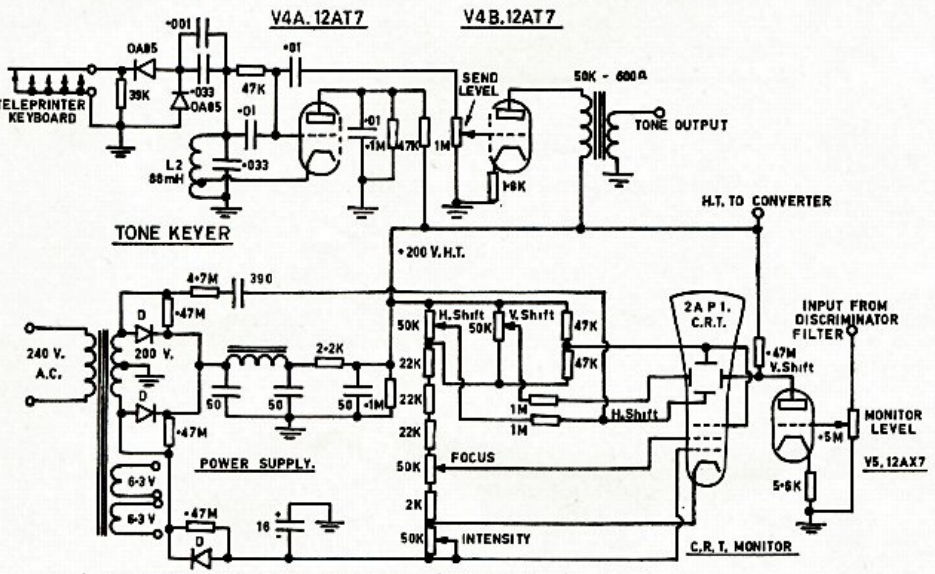


FIG. 4. C.R.T. MONITOR - TONE KEYER & POWER SUPPLY.

C.R.T. MONITOR

A 2" cathode ray tube is used for a tuning indicator. Either the mark or space d.c. signal to the grid of the 12AU7 is fed to the grid of a d.c. amplifier, which used half of a 12AX7. The anode is directly connected to the vertical plates of the c.r.t.

A small portion of the 50 cycles a.c. is used as the horizontal sweep. The 4.7 meg. resistor and the 390 pF. capacitor are adjusted so that the trace just extends across the face of the tube. The gain control in the grid of the 12AX7 controls the amount of separation from mark to space.

When the teleprinter speed is set for 50 bauds, 67 words per minute (w.p.m.), the figure eight pattern on the c.r.t. will appear stationary, due to the 50 cycles sweep frequency, but when the incoming signal is at 45 bauds (61 w.p.m.) the trace will switch back and forth. By this means the speed of the incoming signal can be seen.

When the receiver is correctly tuned the mark or space voltage at the grid of the 12AU7 will be at a maximum and this can be viewed on the monitor.

FIG.5.

FILTER CONSTRUCTION

The filters consist of two band pass filters tuned to 2125 cycles and 2975 cycles. The basis of each is a coil having an approximate inductance of 88 millihenries. These coils can be either old P.M.G. telephone loading coils, in which case the two coils are connected in series aiding to give the required inductance, or wound on Ferroxcube "D" type cores. These require approximately 720 turns of 26 B. & S. enamel wire to obtain the 88 millihenries. This inductance is not critical, but the coils want to have a reasonably high Q.

To test the filters a simple circuit (Fig. 6) can be set up. A 100K ohm resistor is used to isolate the audio oscillator from the filter under test. Capacitors are placed in parallel with the coil until a definite peak is found at the required frequency. After this, a frequency response curve can be easily obtained by plotting output volts against frequency.

A vacuum tube voltmeter or c.r.o. is the best to measure the output voltage, but a high resistance voltmeter can be used. It does not matter if the response curves are a little broad as this will make any frequency drift in the receiver less noticeable.

CONCLUSION

After the converter has been set up an audio tone of 2125 cycles is fed into the converter. This will take the polar relay to one side. A tone of 2975 cycles is then fed into the converter and this will move the polar relay to the other side.

Frequency stability of the receiver is essential, but most good quality communications receivers are suitable. A period of time should be allowed for the receiver to stabilise before a station is printed.

When the receiver does drift, the resultant two tone signal frequencies will fall outside the pass band of the receive filters and only rubbish will be printed.

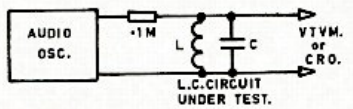


FIG.6. FILTER TEST CIRCUIT.

The teleprinter keyboard and page printer can be checked by simply placing them in series in the local loop and typing. Alternatively, the output from the two tone oscillator can be fed into the input of the converter. This is known as "back to back" testing and proves the operation of the teleprinter and the converter.

One additional switch was fitted in the converter. This is a "mark hold". When this is operated, the receiver can be retuned or altered. The switch is across the contacts of the polar relay and places the teleprinter on a permanent mark.

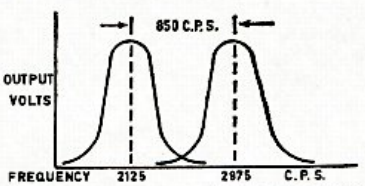


FIG.7. TYPICAL RESPONSE CURVES FOR TWO FILTERS.

A simple 100 volt loop current supply can be made by placing an OA210, OA211, etc., as a half wave rectifier across the 115 volts motor supply. **Note.** —This must not be placed on the transistor keyer.

If a tape recorder is in the shack and it has a reasonable frequency response, the two tone signal from the receiver can be recorded and played back into the converter for test purposes when there are no stations on air.

— . . . —

SIDEBAND

(Continued from Page 9)

black lead in the negative hole. Failure to do this with an Avo "8" was responsible for a rather expensive debacle which came to my notice. My own JA multimeter has this one covered as the red lead will not go into the black hole in the meter case. Diodes in the power supplies are good insurance—but don't overlook "bias" supplies.

73 for now, Phil VK5NN.

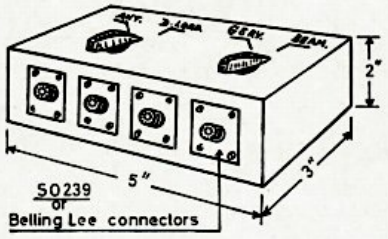
SIMPLIFIED ANTENNA SWITCHING FOR H.F. BANDS

GEOFF WILSON, VK3AMK*

Operation on the h.f. (80-10 metres) bands requires the use of at least two separate antennae if reasonable efficiency is to be achieved and a fair share of DX worked. An antenna designed, say, for 20-10 metres will obviously be useless when 80-40 metre operation is desired (perhaps with the exception of the G5RV, etc., but 20-10 metre operation really requires something with a little more gain and directivity) By the same token the 80 or 40 metre dipole, which performs so well in its own right, leaves much to be desired on 20-10 metres.

The operator who likes to work all five bands must therefore have an antenna system for 80-40 metres and one or more for 20-10 metres, and be able to change quickly from one to the other without hunting for co-axial cables or unplugging or unscrewing various connectors. Sooner or later the connectors start to wear, contacts become dirty or fail to make firm electrical and mechanical connection, etc.

Having experienced these troubles, I decided to take steps to remedy the situation and make antenna changing as easy as band switching. After looking at currently available commercial co-axial switches, I discovered there were several drawbacks: (1) Price! (2) My requirements were not readily catered for in commercially made switches unless I bought several and interconnected them. (3) Placement of the connectors on the switch housing was inconvenient, requiring special mounting and/or a number of right angle connectors which add considerably to the cost.

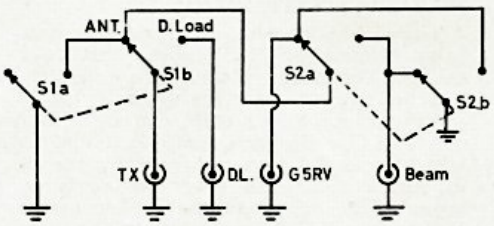


My requirements were (a) to be able to switch the transceiver to a dummy load, for tune up without radiating a signal or for testing on full input while monitoring on a c.r.o., (b) to enable rapid change over from the G5RV used on 80 and 40 metres to the 3 element tribander for 20-10 metres. Often it is desirable to listen briefly on the lower bands to see what is happening and then revert to the higher bands. It becomes pretty tedious if plugs have to be changed for such a short period and even tends to deter one from operating on bands requiring another antenna unless there is a definite sked or a station to be worked.

The end result was a cheap, simple and effective switch that was constructed in a matter of an hour or so and has proved to be a real winner in operating convenience and cost.

* 7 Norman Ave,. Frankston, Vic., 3199.

Let me make it quite clear that it is not meant to rival a commercial unit rated at 1 kW. to 500 Mc., but these stringent requirements are not what I am asking of it. Mine operates with a linear producing 400w. p.e.p. at 28 Mc. and is quite satisfactory. Cross talk is kept to a minimum and in the dummy load position, NO signal is audible in the receiver from either the G5RV or TH3.



The constructional details may be varied to suit individual requirements but all leads should be kept as short, direct and heavy as possible. The braided outer conductor of thin co-axial is ideal. The actual switches used were Oak type two-pole, two-position, but since constructing my unit an article has appeared in "CQ" using slide switches in the same application. No doubt many types could be used, but a little experimentation may be required to find the most suitable.

Switching must only be carried out with the transmitter on stand-by. R.f. arcing may ruin the switch contacts (and the final tube) if these precautions are not observed.

The switches are housed in a metal box 5" x 3" x 2" with a metal cover on the back for shielding and this can also serve as a method of attaching it to a wall if a couple of screw holes are drilled in the back plate. The connectors used were SO239, but Belling-Lee types, etc., can also be used. For my own requirements, the connectors were mounted on the edge of the box but once again this depends on just where the switch will be placed, and the choice of position is left to the constructor, as also applies to the placing of the switches.

Improving the Signal-to-Noise Ratio of Receivers

(That incorporate the use of 6BE6 Mixers)

JIM JONES,† VK2ZEZ/T (Ex-VK3ZEW)

Many of the cheaper Amateur receivers incorporate the use of a pentagrid mixer such as the 6BE6. This tube would be one of the noisiest modern tubes available today, having an equivalent noise resistance of 250K ohms.

The use of such a tube in an Amateur receiver, even with an r.f. amplifier, is the noisiest link in the whole receiver. The main argument for their use seems to be, you get a little more gain, but what is the use of this gain if the receiver noise is much higher anyway?

As the 6BE6 is a seven-pin miniature, this limited the number of tubes we could choose from, that also had a low noise figure. Finally, after looking in the junk box, we came up with the 6J6.

The 6J6 has an equivalent noise resistance of 2000 ohms approx., which is a vast improvement on the 6BE6. This modification only requires the re-wiring of the 6BE6 socket and the replacing of a couple of components.

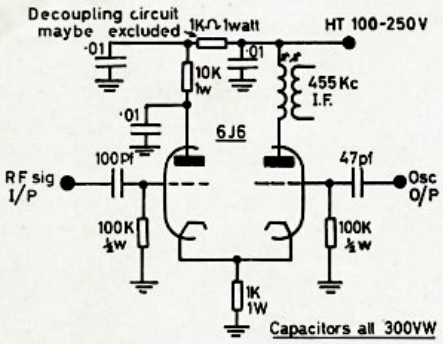
This circuit is very commonly used in most s.s.b. rigs, both transmitter and receiver, and is known as a product detector.

THEORY OF OPERATION

The r.f. signal is fed on to the first section grid of the mixer. This first section is only a cathode follower (which has a gain less than unity).

The main reason for incorporating this circuit is that both inputs to the mixer are isolated, thereby cutting down spurious signals generated by the interaction of the two.

As the cathode is common to both sections, the r.f. signal is cathode injected into the second section. (Note the cathode must be unbypassed.)



The oscillator is coupled through a 47 pF. capacitor on to the second grid. The two signals are mixed and amplified together by this section. At the anode there are four frequencies—the two inputs, the sum and difference frequencies.

The i.f. transformer is in the anode circuit and selects the correct frequency and the others are bypassed.

The only disadvantage of the circuit is that there is a slight loss of gain, but the signal-to-noise ratio is vastly improved, so the loss can be overcome just by the fact that we can hear signals which (even with the extra gain) were down in receiver noise level.

† 1 White St., Darlington Point, N.S.W., 2706.

STOP PRESS

STATEMENT FROM REGION III. CONGRESS

Sydney, Australia, 15th April, 1968

At this inaugural meeting the following countries accepted an invitation to attend and were Japan, Philippines, New Zealand and Australia.

Support for this meeting and apologies were received from Nepal, India, South Korea, Laos, Thailand, United Kingdom and Hong Kong.

The President of the I.A.R.U., Robert Denniston, W0DX, was also present and was requested to be Chairman for the discussions.

It was resolved that an organisation be formed in Region III. and the following objectives were agreed to:—

AIMS

The aim of the organisation is to assist the officers and headquarters of the I.A.R.U. in their objectives. Specifically these are—

(a) The promotion and co-ordination of two-way radio communications between Amateurs of Asia and Oceania.
(b) To effect co-operative agreements between the National Amateur Radio Societies in Asia and Oceania.
(c) The advancement of the radio art.
(d) The representations of two-way Amateur Radio common interests in international communication conferences.
(e) To promote such additional activities allied to Amateur Radio communications.

FURTHER OBJECTIVES

Further objectives, to deal with problems peculiar to this area, are—

(a) To approach government officials in all countries in Region III. to encourage them to improve their attitudes towards Amateur Radio and to ensure the retention of the Amateur frequency allocations.
(b) The development of educational assistance programmes.
(c) The introduction and establishment of Intruder Watch activities.
(d) The establishment of essential emergency communications within the respective countries.

ORGANISATION

It was resolved that there will be a board of directors, one from each society represented and appointed by that society. The President of the I.A.R.U. also to be a director. The Wireless Institute of Australia is to provide a Secretariat and will be appointed by this Institute in consultation with the W.I.A. Director.

It was further resolved that monies will be contributed by the Societies of Japan, Australia, New Zealand and the Philippines in proportion to their resources, such monies to be applied to purposes approved by the directorate.

The meeting resolved that the Secretariat formulate draft rules to be circulated amongst Directors for discussion, and that subsequent opinions will be collated by the Secretariat and re-circulated to the Directors with a view to their adoption at the next Plenary.

It was resolved that Directors and Secretariat plan future Directors' meetings.

The meeting placed on record its gratitude for the offer of J.A.R.L. to hold the next Plenary meeting in Tokyo in 1971.

The visiting delegates expressed their great appreciation for the initiative of the Wireless Institute of Australia in convening the first Region III. Congress and for its excellent facilities and gracious hospitality.

DELEGATES PRESENT

Representing I.A.R.U.:
President, Robert Denniston, W0DX, VK2BBH.

Representing Japan:
President J.A.R.L., Kenichi Kajii, JA1FC.
Foreign Liaison Director, Kiyoshi Mizoguchi, JA1BK.

Representing Philippines Amateur Radio Association:
M. Emilo Asistores, DU1EA.

Representing N.Z.A.R.T.:
President, Harry Burton, ZL2APS.
Tom Clarkson, ZL2AC.

Representing W.I.A.:
Geo. Pither, VK3VX.
David Rankin, VK3QV.
Peter Williams, VK3IZ.

— . . . —

CONTEST CALENDAR

11th/12th May: 17th OZ-CCA Contest (c.w. only).
11th/12th May: Sangster Shield—3.5 Mc. (N.Z.A.R.T.).
6th/7th July: New Zealand Memorial Contest —3.5 Mc. (N.Z.A.R.T.).
5th/6th October: VK-ZL-Oceania DX Contest, Phone Section.
12th/12th October: VK-ZL-Oceania DX Contest, C.w. Section.
12th/13th October: 21-28 Mc. Phone Contest (R.S.G.B.).
26th/27th October: "CQ" W.W. DX Contest, Phone Section.
26th/27th October: 7 Mc. Phone Contest (R.S.G.B.).

— . . . —

AWARDS

Korean DX'ers Society.—Now available is the Korean WAK Award. Requirements are as follows: Confirmed contacts with one HM1 and one HL9 station **after** Sept. 1960. Any band, any mode. Submit certified list to Award Manager, HM1AP, P.O. Box 235, Kwangshamoon, Korea, and 8 I.R.Cs. or equivalent.

Benelux Award.—The OSA, Antwerp CW DX Club issues this award to any Amateur for confirmed contacts with Belgian, Luxemborg Amateurs as follows: DX applicants need four ONs, four PA0s, and two LXs. S.w.l's need seven ONs, seven PA0s and two LXs. Contacts after Jan. 1, 1947. QSLs need not be submitted. Send certified (by two officials). Log details and seven IRCs to ON5AX, Antwerp, OSA DX CW Club, Post Box 331, Antwerp.

NEW CALL SIGNS

JANUARY 1968

VK1WB—W. B. R. Brooks, Cottage 64, H.M.A.S. Harman, Canberra, 2600.
VK2BCB—G. A. Rutter, Station: Lot 185, Broadview Ave., Culburra; Postal: 21 Hall Rd., Hornsby, 2077.
VK2BEM—E. M. McDonald, Station: 340 Warialda St., Moree, 2400; Postal: P.O. Box 299, Moree, 2400.
VK2BIT—I. N. Thomas, 18 Alton Ave., Strathfield North, 2135.
VK2BMT—M. R. Travena, 63 Coveney St., Bexley North, 2207.
VK2BPM—P. A. McGrath, 32 Wright Rd., Drummoyne, 2047.
VK2BSR—W. S. Ringrose, R.B.M. 175 Cliff Rd., Forster, 2428.
VK2ZHZ—B. C. T. O'Connor, 594 Victoria Rd., Ryde, 2112.
VK2ZIZ—H. P. Robinson, 29 Orchard Rd., Erina, 2251.
VK2ZOS—H. Schroder, 37 Rangers Ave., Mosman, 2088.
VK2ZSY—R. Soulie, 1/120 Mount St., Coogee, 2034.
VK3AHV—P. E. T. Weaver, 45 St. John's Ave., Camberwell, 3124.
VK3API—Technicians' Training School Branch, A.P.I. Vic. Division, 453 Auburn Rd., Hawthorn East, 3123.
VK3AUY—S. A. Sibly, 17 Suck St., Eltham, 3095.
VK3AYT—T. A. Rowan, 34 Elstone Ave., Niddrie, 3042.
VK3AZT—P. P. Addis, 100 Mathoura Rd., Toorak, 3142.
VK3ZCN—B. P. Jones, 309 Chrisholm St., Ballarat, 3350.
VK3ZHX—H. E. Jones, 3/1102 Dandenong Rd., Murrumbeena, 3163.
VK3ZWJ—N. D. White, 59 Charles St., Ascot Vale, 3032.
VK3ZXK—D. Scragg, 26 Cheam St., Dandenong, 3175.
VK3ZYK—G. H. Gaspars, 22 Hudson St., Caulfield North, 3161.
VK3ZYK—K. G. Malcolm, 40 Saniky St., North Clayton, 3168.
VK3ZYN—D. R. Appleton, 34 Deakin St., East Bentleigh, 3165.
VK3ZZK—A. E. Humphreys, 50 Romoly Dr., Nunawading, 3131.
VK4GU—J. G. Kaarsberg, 30 McDowall St., Toowoomba, 4350.
VK4LO—J. L. Murray, 9 McIlwraith Ave., Balmoral Heights, 4171.
VK5DT—F. J. Rayment, 43 Blencowe St., Elizabeth Grove, 5112.
VK6FS—H. D. Spence, 212 Broome St., North Cottesloe, 6011.
VK6HB—H. G. Buckley, 386 Fitzgerald St., North Perth, 6006.
VK6JJ—A. J. Pearce, Flat 208, 131 Mounts Bay Rd., Perth, 6000.
VK6KC—K. C. Williams, C/o. Pearls Pty. Ltd., Kuribay Station, Kuribay, 6725.
VK6ZDG—B. Noseda (Rev. Fr.), Kalumburu Mission, via Wyndham, 6740.
VK7ZGJ—J. E. Gelston, 144 King St., Westbury, 7303.
VK9CQ—R. H. Mould, 47 Third St., Boroko, Port Moresby, P.
VK9KA—O. S. Dahl, Station: Kurimum St., Lae, N.G.; Postal: C/o. Pioneer Surveys, P.O. Box 387, Lae, N.G.
VK9KC—C. M. Hayes, C/o. D.C.A., Cocos (Keeling) Islands.
VK9SN—J. B. Bell, Station: Hombrom Bluff, via Port Moresby, P.; Postal: P.O. Box 304, Port Moresby, P.

CANCELLATIONS

VK1JT—J. P. Talbot (Mrs.). Not renewed.
VK1PA—J. W. Talbot. Not renewed.
VK1ZAF—W. B. R. Brooks. Now VK1WB.
VK2EM—E. J. Mulholland. Transferred Interstate.
VK2QA—N. T. Durham. Not renewed.
VK2AUP—F. D. Power. Not renewed.
VK3ZTT—Technicians' Training School Branch, A.P.I. Vic. Division. Now VK3API.
VK4BY—E. J. Foster. Deceased.
VK4LY—L. A. Dancey. Transferred Western Australia.
VK4VU—J. H. Dexter. Transferred Victoria.
VK4ZBL—J. L. Murray. Now VK4LO.
VK5BW—B. C. W. Smith. Ceased operation.
VK6CK—C. M. Hayes. Now VK9KC.
VK6DE—H. G. Austin. Ceased operation.
VK6FM—R. H. Mould. Now VK9CQ.
VK6HH—H. Harness. Left country.
VK6LW—W. M. Peterson. Ceased operation.
VK6ZHB—H. G. Buckley. Now VK6HB.
VK7DS—H. D. Spence. Now VK6FS.
VK9ZCF—B. M. Chester. Transferred to Western Australia.

PROJECT AUSTRALIS HI-BAL.

AN INTERIM REPORT ON THE AUSTRALIS II. PROJECT

BY LES JENKINS, VK3ZBJ

At 0605 E.A.S.T. on Thursday, 28th March, under ideal weather conditions, Hi-Bal. flight 391 rose smoothly from its launcher at Mildura Airport. Tucked away inside the 500 lb. payload was the first experimental package of the "Australis II." project, having a total all-up weight of 13 lbs. In Melbourne, 310 miles to the South-East; in Adelaide, 200 miles to the West; at Sydney, 530 miles to the East, Amateurs listened to the net frequency of 7.1 Mc. for news of the event.

At Mildura, Noel VK3AGF talked with the team at the launch site on 146 Mc. At the same time his signal was being relayed via the airborne package on 432.150 Mc. The first Australian Amateur balloon-borne repeater was in flight and working.

The balloon rose slowly above the airport, ascending at about 800 feet per minute. It would be at least an hour before it reached sufficient height to be received by any of the stations listening anxiously at a dozen locations in three States.

At 0700 hours contact was established between VK3AGF and Ken VK3AKK at Springvale, 15 miles South-East of Melbourne on 40 metres. News of the successful launch was passed to Ken, who was maintaining a constant watch on 432.15 Mc. During the contact, at 0710 hours the pen recorder attached to the receiver slowly started to rise. Ken began an immediate transmission on 146 Mc. At Mildura his signal was heard on 432.150 Mc. Contact with Melbourne had been established.

For the next half hour, as the balloon continued to rise (and operators likewise), more and more stations were heard calling and working via the prototype of what will be Australia's first Amateur communications satellite.

The next four hours saw the balloon reach its full height of 103,000 feet (approx. 20 miles) and during the flight contacts were made between Melbourne, Adelaide and Mildura. Signals were also received at Woomera and although faint beat notes were heard in Sydney, no contact was established. Signal strengths of S9 and over were reported by many stations and good readability was maintained throughout the flight, in spite of interference created by some of the equipment belonging to the main experiment carried on the balloon.

Some of you may be wondering what this is all about and perhaps know nothing of the "Australis II." project. "Australis I." has been covered by this magazine before, and is scheduled for launch later this year. This will be followed by a second satellite, which, it is hoped, will be a high altitude semi synchronous orbiting linear translator. Exact details of input and output frequencies have not yet been decided, so we are using the balloon-borne flights to gather data on the performance of various systems in an effort to ensure that the right one goes into orbit.

EQUIPMENT USED

The system which was used in the flight described is as follows: Signals transmitted by ground stations on 146.000 Mc. f.m. are received by the repeater using a high grade, but otherwise conventional f.m. receiver. The signal is de-modulated and passed on to an exciter which generates a phase modulated signal at 13.5066 Mc. This is then frequency multiplied to 108.03 Mc. and raised to a power level of 6 watts. This power is then applied to a Varactor quadrupler and thence to the transmitting antenna. Power output is 3 watts.

The receiving antenna used was an inverted ground plane of convential design, whilst the transmitting antenna was a turnstile, horizontally polarised.

Power for the package was provided by alkaline re-chargeable cells normally carried by the balloon. The supply voltage was 13.5 volts and the total current drain 750 mA.

It is hoped that many more flights of this nature will take place during the next few months, so keep an ear to receivers on 7.100 Mc. on Monday evenings at 2000 hours E.A.S.T. and also on 146.00 Mc. f.m. for details.

Finally, I would like to take this opportunity to express my thanks to all those who helped to make the first flight so successful. This is particularly so of the launch crew at Mildura, led by Eric Curwood, of the Dept. of Supply. Also, the venture would not be possible without the co-operation of the American Atomic Energy Commission, by whose courtesy space on the flight is made available.

I would like also to thank all the Amateurs who participated in the experiment, particularly Ken VK3AKK, who made continuous tape and chart recordings of the entire flight, also Noel VK3AGF who placed his station at our disposal for liaison purposes during our stay at Mildura.

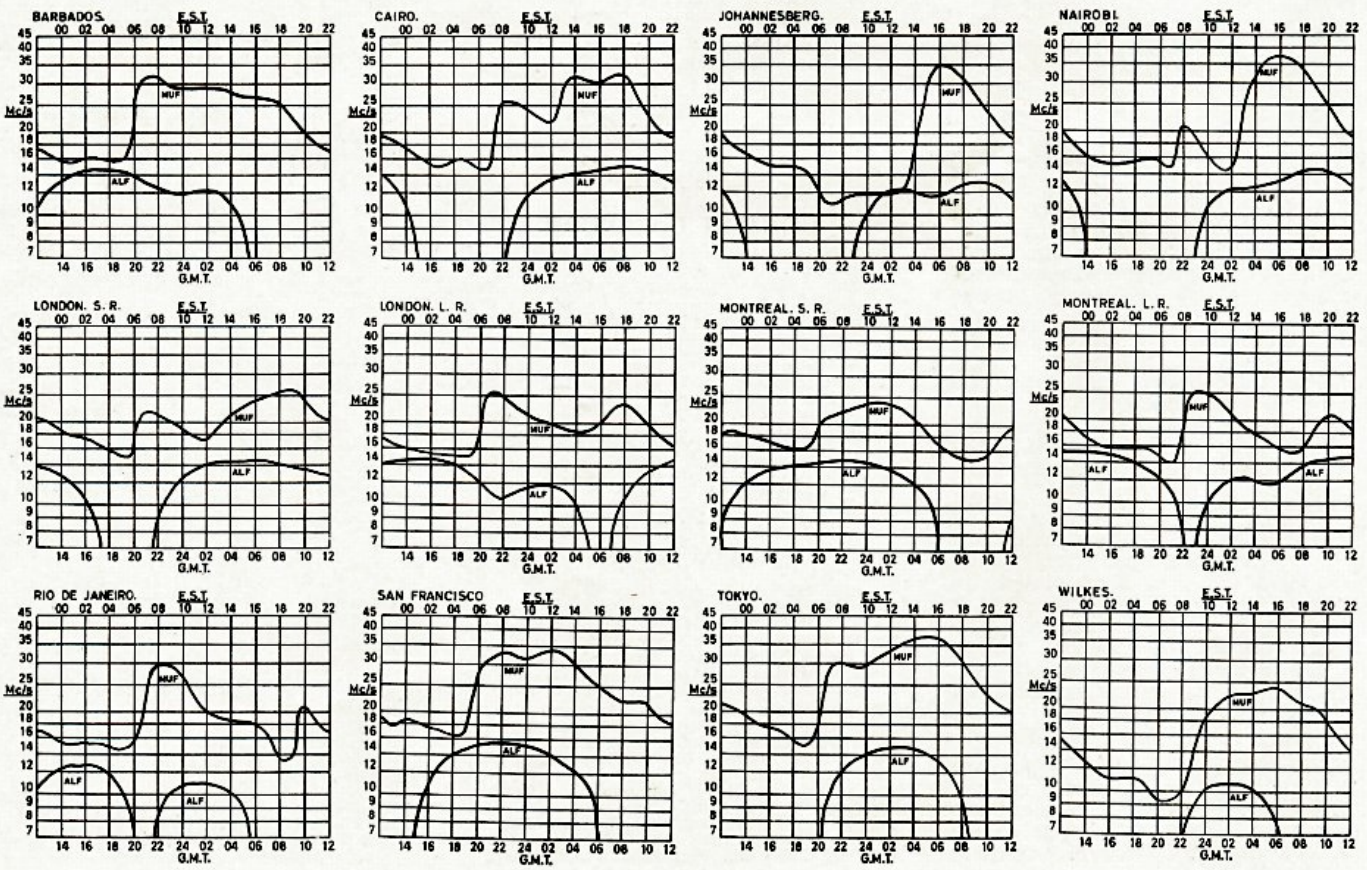
There are two people left whose names have not yet been mentioned. They are Ralph VK2ZRG and Cliff VK2ZLW. The package which was flown was designed and built by them at Sydney, and is the result of nearly a year's work. Congratulations to both on a remarkably fine effort.

This report would not be complete without a list of the stations who worked through the repeater. This list may be incomplete due to lack of information, so we would appreciate any reports in this regard: VKs 3AKK, 3AGF, 5QZ, 3FW, 3ZER, 3ZCG, 5ZMW, 3ZDI, 3ZJQ, 3ZPI, 3ZBJ/Mobile Mildura, also 5QX at Woomera and 5TN Adelaide.

The crew at the launch consisted of Richard Tonkin, of the Melbourne University Astronautical Society, and myself, Les Jenkins, VK3ZBJ.

PREDICTION CHARTS FOR MAY 1968

(Prediction Charts by courtesy of Ionospheric Prediction Service)



1967-68 ROSS HULL MEMORIAL CONTEST RESULTS

TROPHY WINNER

VK3ZER—R. W. WILKINSON

RESULTS TABLE

(Award winners given in bold type)

Call Sign	7-Day Score	Section	No. of Contacts per Band (Mc.) 52	144	432	1296	48-Hr. Score
VK1VP	**421**	**B**	**49**	**10**			**216**
1ZCG	320	B	61				105
VK2ZCF	**988**	**B**	**86**	**169**	**14**	**7**	**357**
2ZFB	922	B	164	12			283
2ASZ	277	B	66	22			134
VK3ZER	**2158**	**B**	**6**	**101**	**26**		**794**
3ZOS	1165	B	22	51	11		472
3ZYG	1137	B	120	68			459
3ZCG	704	B	17	125			243
3ZVV	666	B	45	118			214
3ARM	659	B	61	48			278
3ZYT	395	B		77			200
3AZG	113	B	7	28			53
3AUN			10	6			122
VK4ZMG	**936**	**B**	**147**				**399**
4ZFR	552	B	69				146
VK4ZIM	546	B	64				296
4ZZE/3	130	B	27				40
VK5HP	**1864**	**B**	**34**	**105**	**9**		**610**
5ZKR	1474	B	50	40	9		535
5ZMW	728	B	87	16			279
5ZEJ	319	B	29	17			122
5TN	67	B	10				46
VK6ZAS	**607**	**B**	**178**	**28**			**205**
6ZAA	393	B	105	21			135
6ZFY	221	B	80	22			78
VK7DK	**974**	**A**	**17**	**72**			**458**
7ZAH	**534**	**B**	**52**	**22**			**167**
7ZCW	71	B	31				37
7ZKJ	30	B	10				78
VK8ZMP	**14**	**B**	**4**				**11**

Listener's Section:

VK5-L5088 452

EXCERPTS FROM COMMENTS RECEIVED WITH LOGS

"Enjoyed another Ross Hull Contest; very happy with the Rules and point scoring, but completely disgusted with the poor condtions experienced on 6 metres over the Contest period. New Zealand stations were almost non-existent and no 2 metre openings. It takes all the fun out of it when one has to sit by a dead band for hours or days to be rewarded with a 10-minute opening to the next State only."—VK2ASZ.

"In general the Contest does do a lot to stimulate interest of the v.h.f./u.h.f. bands. It should be retained if at all possible even if the actual number of logs submitted is rather low. I do not think the number of logs returned reflect the true interest in the Contest. I found operation very enjoyable and did not find any reluctance on the part of other Amateurs to exchange numbers.

"'I feel that log requirements are one of the keys to greater interest in the Contest. There is quite a lot of work in submitting a log and anything not essential should be dropped. The 'Emission/Power' column has nothing to do with scoring whatever, so why have it? Perhaps an inclusion on the summary sheet would be sufficient.

"With regard to distance, I feel that the distance in miles should not have to be stated unless it is more or less on the border-line. For instance, a 6 metre contact is worth 5 points, 501 to 1050 miles; if a station is worked between, say, 550 and 950 miles, what point is made by quoting the mileage?

"The scoring table seems to be okay apart from some of the lower mileages on 6 metres and I feel that the scoring on 2 and 6 metres should be the same up to 300 miles.

"The exchange of numbers for local contacts and a one point score, while not helping much in the Contest, do seem to stimulate interest and for that reason should be retained."—VK3ZYG.

"I wish to make one complaint re the rules of this last Ross Hull Contest, and is also the feelings of my fellow Amateurs here in the Eastern Zone, also the VK3 and VK4 (southern) v.h.f. fellows, that it was not fair, as the band was open, especially from VK3 to VK4 and VK4 to VK5, and neither the VK4s nor VK3s could come on because of TV Ch. 0 on air, so I recommend future Contests, either 144 and above OR VK3 and VK4s compensated in their scoring tables. 73."—VK3ZCG.

"Rules okay, but would like 50-100 miles on 6 metres to be worth 5 points. It is a much easier distance on 2 metres, and is worth 5 on that band."—VK3ZVV.

"'I enjoyed taking part in Contest and feel that it does create a lot of interest on v.h.f.

"Filling out of logs is a bit tedious—why not leave out power as it does not have any bearing on results. Points for local contacts should be retained, because while you are talking to locals, you may be heard further away.

"Suggest some recognition for station in each State with the most contacts.

"How do you make a JA understand you want a number for a contest?"—VK3ARM.

"'I have participated in the Ross Hull Contest since 1961 and would not like to see it abolished for any reason. I have not entered a log for the past few years owing to poor conditions on the v.h.f. bands in which I operate and hence a very low score. The 48-hour division is a good scheme and to confirm my interest in the Contest I am submitting a log for this section. The rules and scoring table are F.B."—VK3AUN.

"(1) Would like to see the duration consist of either 7 or 9 days, but to be consecutive days of operation. This would ensure more sustained activity during the peak period of the Contest. As one can now simply pick and choose, there is nothing to hold one to the true spirit of the Contest.

"(2) It could also still be in the overall interest of the Contest for an award to be made for the highest scorer in each call area covering the full period of the Contest, in addition to the 7-day period. This would give the die-hards who claim the shorter period has spoilt the Contest to still give it a go if they have the time, which they apparently have, while allowing the shorter period for those not so fortunate to have holidays or simply to spare time for a month or so.

"(3) The scoring table still contains anomalies I feel. As I suggested in earlier correspondence, the table would be ideal or close to it if the scoring for 52 Mc. for 51 to 100 miles was raised to the same as 144 Mc., namely 5, and the 101 to 200 scoring for 52 Mc. raised to 10, in line with 144 Mc. Otherwise, the table seems okay.

"(4) Fully agree with E.A.S.T. for an Australian Contest.

"(5) Would not like to see Contest discontinued, despite what entries may be received this year. The band conditions were so consistently poor for the average contestant that only those favourably situated, e.g. in Victoria or South Eastern S.A., are likely to have consistent scoring, as they are within 144 and 432 Mc. range continuously, whatever the day or conditions. The rest must depend upon 52 Mc. openings for consistent logging, and this was not possible this year on a par approaching anything like some previous years.

"(6) I feel the Contest Committee at present handling affairs is doing a very good job, and I have no criticism to offer."—VK5ZEJ.

"Rules will never let W.A. entrant win Australian trophy due to lack of 144 and 432 Mc. activity in W.A. country areas, especially compared with Eastern States!

"Ross Hull Trophy should revert to 52 Mc. band only as it used to be and/or other trophies established for 144 Mc. band; and for 432 Mc. and for 576 Mc. and up."—VK6ZAA.

"Conditions again very poor—my personal score would have been far better had the Contest started three weeks to a month earlier. As it was I was 'on the band' on each occasion it was open. Two metre activity in southern VK7 is almost nil."—VK7ZKJ.

"Well, another Ross Hull Contest is over and my scores are going from bad to worse—not for the want of trying. I would like to make some comments about two aspects of the Contest (1) Scoring, and (2) Conditions.

"(1) With respect to the scoring method at present being used, I see little benefit in such a method. I would like to point out the fact that 'if 6 mx opens it's open, and if 6 mx does not open, it isn't!' and nothing we can do will alter the propagation. The same I am sure goes for 144 Mc. Possibly the scoring method at present in use is good for frequencies above 148 Mc. I think a better method for 6 and 2 mx would be, say, 1 point local contact, 2 points DX plus multipliers for States worked—10 for first contact in a State, 5 for second, and 3 for 3rd contact in each State. I hope my suggestion is taken as constructive criticism because I am very much in favour of the Contest.

"(2) Now, conditions—all I can say is 'what has happened to this sunspot cycle?' Do you think you could obtain the figures for the sunspot activity during the Contest period and publish these for information with the Contest results. Possibly with comparative figures. I might add that the best period for DX in this location, Darwin, is during the 'dry season' or the southern winter. Last 'winter' I had the pleasure of working over 200 JA/H, KR6TAB, KA6S. But during the 'summer' or our 'wet season' there appears to be very little from this location.

"I did, however, monitor Channel 0 in Melbourne and Brisbane on numerous occasions and three times New Zealand television. I hope I have not bored you with this information."—VK8ZMR.

The Federal Contest Committee, in presenting this year's results, have set out the table in an effort to show how activity varied from State to State, and how the bands compared with each other. Readers may draw their own conclusions, but from analysis of 1967/8 logs compared to 1966/7, there was a very definite move to 144 Mc. and higher for scoring, while the overall total scores were much lower. The almost non-appearance of ZL stations and the still elusive JA and Oceania contacts possibly attributed to the reduced activity and scores.

If those operators who have not entered the Contest gave one day to working in the Contest and submitted a log, the results could be very useful to the Committee and may provide a certain impetus to the Contest in general. How about it for next year?

To VK3ZER go our congratulations for a fine effort, and to his XYL for the part in preparing his log.

See you all again next year.

—Neil Penfold, VK6ZDK,
Federal Contest Manager.

PAST WINNERS

The first Ross A. Hull Memorial Trophy V.h.f. Contest was held in the summer of 1950-51. The winners since then have been recorded on shields mounted on the base of the trophy. The winners to date are as follows:

1950/51	R. V. Galle, VK5QR
1951/52	H. Lloyd, VK5BC
1952/53	A. K. Bradford, VK4KK
1953/54	R. J. Everingham, VK6BO
1954/55	R. Greenwood, VK4NG
1955/56	G. M. McCulloch, VK3GM
1956/57	I. F. Berwick, VK3ALZ
1957/58	I. F. Berwick, VK3ALZ
1958/59	I. F. Berwick, VK3ALZ
1959/60	D. R. Horgan, VK4ZAX
1960/61	W. Roper, VK3ARZ
1961/62	M. J. McMahon, VK5ZDR
1962/63	D. R. Horgan, VK4ZAX
1963/64	M. J. McMahon, VK5ZDR
1964/65	R. W. Wilkinson, VK3ZER
1965/66	J. R. Beames, VK3ZDM
1966/67	J. H. Lehmann, VK5HP
1967/68	R. W. Wilkinson, VK3ZER

Thus it can be seen that stations in VK3 have won 8 times, VK5 5 times, VK4 4 times, and VK6 one. Nobody in VK2 or VK7 has ever won the trophy which is surprising since the Eastern States are supposedly "hot beds" of v.h.f. activity.

—D. H. Rankin, VK3QV,
Federal Activities Officer.

— • • • —

LATE ENTRIES FOR VK-ZL-OCEANIA CONTEST 1967

LA9HC	OK2DB	OK1ALG
SM2DQS	OK2ABU	OK1AAW
OK1MS	OK1AHZ	OK3-17588/1
OK3CCC	SP8AJK	UA3KBO
OK2BIO	SP6ABH	UA1ZZ
OK2RZ	OK1AII	UA9JL
OK1ADM	OK1AFO	UA6KAE
OK2BBJ	OK2BIP	UB5KBA
OK2QX	OK1AFN	W6GBI
	OK1CJ	

Wireless Institute of Australia Federal President's Report

MARCH 1967-APRIL 1968

Gentlemen, it is again my pleasure to present an Annual Report to the Federal Council on the occasion of the 32nd Federal Convention being held this year in Sydney.

Firstly I would like to record my thanks to the members you appointed to the Executive for the year 1967-68 for the teamwork and efficiency with which the duties of the Federal Executive has been carried out. In particular, I extend to Federal Secretary, John Battrick, VK3OR, my sincere appreciation for the tremendous effort he has personally exerted in handling local and overseas correspondence, news bulletins to the Federal Council and to "Amateur Radio" magazine, for making available to me copies of outward correspondence and other pertinent information in order that I be kept in touch with Executive affairs, and for his expertise in co-ordinating the work of all other members of the Executive. In addition to all this, he has found time—with other members of Executive—to maintain regular schedules on the air with Federal Councillors and on the South East Asia net where excellent liaison work has been carried on with Region III. affairs. With much of this work he has been ably assisted by Assistant Federal Secretary, Peter Williams, VK3IZ, who will be taking up the post of Federal Secretary for the next twelve months.

The experimental period I mentioned last year of sharing the services of the office staff of the Headquarters Division has proved most successful. The additional drain on Federal Council funds has been most reasonable and is far outweighed by the advantage of having a much greater volume of work done in a shorter period of time than was hitherto possible. I believe Federal Council will agree that the amount of information received is proof of the success of this move.

The production of the Hobart Convention minutes—a record of 84 pages—was again a combined effort of four Executive members and the completed document was in the hands of Federal Council with little delay. I would like to record my thanks to Geoff D'Emden, VK7ZAS, who, despite technical problems with one of the recorders which remained undetected until after the conclusion of the Convention, was able to re-record from an overall "master" tape which had most fortunately been set up as a standby machine simultaneously recording the entire proceedings at 1⅞ inch per second.

HANDBOOK

The final printing of the Handbook for Operators of Radio Stations in the Amateur Service was protracted for reasons beyond the Institute's control. However, as you are all now aware, it is available from booksellers and advance copies were forwarded to Federal Councillors by Federal Secretary John Battrick.

During the period of delay in the printing of the Handbook permission was granted to advise Amateurs on much of the context and this information was compiled by Federal Vice-President, Harold Hepburn, VK3AFQ, and printed in various issues of "Amateur Radio".

The publication of this Handbook saw the completion of an extremely large project and my compliments are extended to all those who spent so many hours working in liaison with the licensing authority for its ultimate printing and for having been successful in cleaning up the anomalies and ambiguities which existed in the earlier edition. The co-operation extended to the W.I.A. by the Postmaster-General's Department has been very much appreciated and I am certain that the extent of the new Handbook will benefit the Department as well as the Australian Amateur in making for cleaner application of the Regulations under which we operate.

INTRUDER WATCH

The Intruder Watch Committee composed of Air Commodore George Pither, VK3VX; Assistant Federal Secretary, Peter Williams, VK3IZ; Dr. David Wardlaw, VK3ADW; and myself (VK3ZS) held several meetings following on the Hobart Convention. Federal Secretary John Battrick circulated information on the progress of the project from time to time in Federal News Bulletins.

Information on the systems used by the A.R.R.L. and the R.S.G.B. were obtained and discussed by the Committee in detail. A format for the forms to be used was decided upon subject to confirmation on the particular one headed—"From the W.I.A. to the P.M.G's Department". This was to be discussed with Mr. Charlie Carroll of the Radio Branch, following the Christmas holidays, but due to the serious illness of Mrs. Carroll this has not been possible. It was necessary for Mr. Carroll to take long service leave to look after his wife and as at the time of writing I have to advise that Mrs. Carroll passed away. The Executive sent cards and flowers as an expression of sympathy on behalf of the Federal Council.

The final stages of this project will be taken up as soon as Mr. Carroll is available. In the meantime I trust Divisions are looking for candidates prepared to offer a few hours of service each week as Intruder Watchers, and that one qualified Amateur is being appointed as Divisional Intruder Watch Officer.

I wrote an article in the October 1967 issue of "Amateur Radio" giving details of the system we proposed using and calling on Amateurs to offer assistance in protecting their own bands. This was supplemented by John Battrick on the Federal Comment page in the November issue, but to date there has been limited response.

The project is now in the hands of Dr. David Wardlaw, VK3ADW, and you will be receiving further information from him later on this year. The project needs to get off the ground in support of action already taken in Regions I. and II. so I trust you will do all possible to obtain the services of members of your Division.

CONTESTS

The Contests in general were again well supported over the past twelve months, the results of which have been printed in "Amateur Radio" magazine. On behalf of the Executive, I wish to record our appreciation of the fine team work carried out by the Federal Contest Committee under the managership of Neil Penfold, VK6ZDK, who will be attending this Convention as the newly appointed Federal Councillor for the VK6 Division. It is also gratifying to know that the VK6 Division is again prepared to provide the personnel for the Federal Contest Committee for the next three years. Federal Activities Officer, David Rankin, VK3QV, is to be commended for his excellent liaison work in assisting the smooth operation of the Federal Contest Committee.

The Remembrance Day Contest—always a most popular event—was opened on 12th August, 1967, with an illuminating recorded address by the Hon. Allen Fairhall, M.H.R., Minister for Defence. To those who heard the recording it would be obvious that such an excellent address would not have been prepared in five minutes, yet—and typical of Allen Fairhall—it was prepared at short notice at a time when he was confronted with a hectic week of pre-budget work as Minister for Defence. I record here the appreciation of the Wireless Institute of Australia for a very fine address and the time devoted to doing it.

At this point I must also record my appreciation of the work done by the Hunter Branch of the W.I.A. in making the arrangements for the recording, particularly to Jim Cowan, VK2ZC, from the engineering staff of Broadcasting Station 2KO who made the actual recording and copies; to the announcer and other members of the staff who assisted; and to Keith Howard, VK2AKX, who made the initial arrangements and despatch of the tapes to the W.I.A. Divisions. Congratulations go to VK3 for winning the R.D. Contest for 1967.

FEDERAL AWARDS

It was with deep regret that we recorded the passing of the Federal Awards Manager, Alf Kissick, VK3KB, on 26th May, 1967. Alf was a well-respected and well-known DX operator who, despite declining health over a number of years, devoted all his spare time to the work of recording and mailing certificates to applicants for awards and generally dealing with all matters pertaining thereto.

Bill Hempel, VK3AHO, a close friend of Alf's, immediately took over the records and until February this year carried on the office of Awards Manager. Due to pressure of work in other directions he has found it necessary to retire and the office has been taken over by Geoff Wilson, VK3AMK, an Amateur with expert knowledge of awards and DX experience. I can assure Federal Council that this part of Institute affairs is in most capable hands.

From an inspection of the awards records I find there has been a satisfactory "lift" in the number of applications for awards generally, particularly the WA-VK-CA Award (Worked All VK Call Areas Award) which serves as a silent ambassador for VK abroad. I believe the certificate issued in respect of claims for this award is held in high regard by overseas Amateurs who have received it.

FEDERAL QSL BUREAU

Last year we said "goodbye" to Ray Jones, VK3RJ, who had notified Executive of his resignation after 34 years' service as Federal QSL Officer.

However, I am glad to say that Ray must have found solutions to his problems and agreed to carry on. Some of the work load has been taken off his shoulders by a change in the operation of the Bureau and we are indeed happy to have him back on the job. His usual report will be tabled later on in the proceedings of this Convention.

PUBLICATIONS COMMITTEE

Again the Publications Committee has worked hard and quietly in the background to maintain publication of "Amateur Radio" and the "Australian Radio Amateur Call Book".

A sizeable amount of space was granted to Executive during the past twelve months for the purposes of bringing a certain class of information to members. I believe this has been a good thing and has resulted in a better understanding by members of what is going on in the Amateur Service and the Institute generally.

In addition to this class of context, a steady flow of technical articles has appeared and the general high standard of the magazine has been maintained. Another up-to-date issue of the Call Book has been printed, utilising the same highly praised format of the 1966-67 edition.

A report and balance sheet will be tabled during the Convention along with other reports.

MEMBERSHIP

In mentioning membership I have belaboured the point in the last few years that the finance required to maintain the Institute's activities and to extend them into the field of assistance to under-developed nations where little or no Amateur Radio exists—and this is something I believe we must do to protect the future of our technological hobby—can only be available by expanding membership or raising fees. But since raising fees would only partly solve the problem and would not be something we could expect to go on raising, then expanded membership is the real solution at this stage.

The figures I have available of licensed Amateurs in VK, compared with last year, are as follows:

	Full	Limited	Total
1966-67	3842	1419	5261
1967-68	3984	1587	5571
Current Increase	142	168	310

From these figures you will note a total increase of licensees for the year of 310, of which 168 successfully completed the A.O.L.C.P. and 142 the A.O.C.P. This marginal increase in the percentage of Limited to Full licensees was pointed out to Federal Council some years ago and suggestions were discussed for encouraging Limited licensees to sit for the Full licence. Some Divisions, I believe, did take some steps to encourage Morse Code practice for Limited licensees, and I can only reiterate that some importance should be attached to this matter by all Divisions.

Calculated from the membership returns at hand, the following figures indicate the strength within the Divisions:

	VK2	VK3	VK4
Month ending	Dec. 67	Feb. 68	Oct. 67
Life	15	14	—
Full	890	834	344
Associate	443	259	123
Others	13	—	25
	1361	1107	492
Previous Totals	1287	1058	478

	VK5	VK6	VK7
Month ending	Feb. 68	Jan. 68	Feb. 68
Life	4	6	7
Full	380	237	142
Associate	143	71	83
Others	23	—	—
	550	314	232
Previous Totals	525	318	229

From these figures—compiled as at the dates indicated on the table above—the total membership of the W.I.A. stands at 4056, of which 2827 are full members. This full membership represents close to 51.5% of the total number of licensed Amateurs in the Australian Commonwealth and its Mandated Territories—an 0.5% decrease over the period 1967-68.

This is, of course, not a significant loss, and in the final assessment means that the Institute as a whole continues to attract around half of the licensed Amateurs as it has continued to do now for a number of years.

However, I am bound to express the opinion—as I have done in other years—that the organisation of this Institute has the potential to encourage at least 75% of licensees to become members. We all believe—and I believe it is true too—that the W.I.A. is solely responsible for the privileges enjoyed by Amateur operators in this country. But whilst we perhaps cannot expect to gain a 100% licensee membership, I strongly suggest that our public relations effort needs upgrading to bring about a better than 51.5% membership.

As I also said last year—without a growing membership the Institute will meet with difficulties in dealing with increased running costs. Entering into fields of operation such as those envisaged in the Asian area will eventually impose a severe drain on the Institute's financial resources if plans are ultimately carried out as presently proposed, a matter which will receive the attention of Federal Councillors and others this Easter.

There are, of course, other ways and means to raise finance, some of which I advocated many years ago. These were met with a rather nebulous interest and have fallen into obscurity. I therefore find a membership drive still the only logical course open to the Institute and again commend this for the continued activity by Divisions.

Federal finance, however, is in a satisfactory position to cover current involvement. Federal Treasurer, Kevin Connelly, VK3ARD, asked leave of absence last year in view of having to do an extensive tour overseas for the State Electricity Commission of Victoria, by whom he is employed. During his absence Tom Cuthbertson, VK3ZIQ, carried on as Federal Treasurer and I wish to record the Executive's appreciation for the valuable assistance rendered by Tom during this period. Federal finance is today quite a complicated procedure and requires constant care and attention to which Tom applied himself with zeal and ability despite having limited time to spare.

Kevin Connelly has now returned and has taken up duty on the Executive again, but due to pressure of work is unable to remain as Federal Treasurer and has filed his resignation to become effective upon the appointment of a successor. A person willing to take over the office has not yet been found but Federal Council will be notified when the office is filled.

A full statement of the assets and liabilities of the Executive, together with an audited balance sheet, will be tabled for Federal Council's approval during the Convention proceedings and will appear in the minutes as an annexure. My appreciation is extended to Kevin for a job well done whilst in office and it is regretted he is unable to carry on as Treasurer although he is prepared to remain as a member of the Federal Executive.

Reverting to the membership table, it shows that 46 members have been made Honorary Life Members of the Institute. Last year in Hobart the Federal Council agreed to adopt the current membership badge design produced in green and gold to distinguish the Honorary Life Membership badge proposed under Item 2.7 of the 1965 Convention from Full and Associate membership badges. These have now been struck and are available for distribution.

At the inauguration of this badge it was my desire—for historical purposes—to list in this report the names of those Amateurs who have had this distinction bestowed on them by their Division. With this in mind, I believe the Divisions were asked by the Federal Secretary for a list of the names and call signs of members due to receive the badge but to this date only those from the VK5 Division have been notified to me. I am therefore, unfortunately, unable to name the honoured members, but shall be presenting the badges to Federal Councillors during this Easter period. May I, therefore, record here on behalf of the Federal Council my congratulations to these Amateurs who by virtue of having received Honorary Life Membership have, inter alia, made significant contributions to the Wireless Institute of Australia for the good of the Amateur Service.

It is with sorrow that "Amateur Radio" magazine has had to record the passing of many well known Amateurs over the last year, and sympathy is extended to relatives and friends of our members who passed beyond the vale. Many have been "old timers" and active members of the W.I.A. The Institute is the poorer at the passing of these Amateurs who gave their time in assisting its growth.

W.I.C.E.N.

The Wireless Institute Civil Emergency Network has continued to be active during the year.

In N.S.W., W.I.C.E.N. exercises were held in conjunction with the Civil Defence Authority. and in this regard Federal Executive played an important part in assisting with the establishment of acceptable lines of communication between the N.S.W. (VK2) W.I.C.E.N. Group, the N.S.W. Civil Defence Authority, and the Postmaster-General's Department in order to legitimise these exercises.

In Victoria the system continued to operate as previously established. Many hours of work during the winter months resulted in the two W.I.C.E.N. vehicles reaching the operational stage, and one of these saw "active service" in the field at Myrtleford during January, 1968, in a two-day operation in which 45 operators were engaged. The network was also called on "stand-by" during the recent Dandenong fires but on this occasion did not operate as the normal communication facilities were not imperilled and proved adequate to handle the traffic involved.

Victorian W.I.C.E.N. State Co-ordinator, John Battrick, VK3OR, was a member of the Directing Staff at a communications conference of the Rural Fire Brigades and the Country Fire Authority (C.F.A.) held during the winter period.

During October, heartening news was received from the Tasmanian Division following on the problems the Institute and other services met during the devastating Tasmanian fires. Subsequent to a visit by Tasmanian Chief Secretary, Mr. Brian Miller, to South Australia to study the E.F.S. system there, Federal Councillor, Ted Cruise, VK7EJ, called on the Secretary of the Department. As a result of this visit the Tasmanian Division representative was invited to attend a meeting, the result of which was that the VK7 Division has been fully accepted into the disaster plans of that State. I know that Federal Council will be pleased as I am to know that the fine work of the Tasmanian Amateurs who participated in the Tasmanian emergency, one of whom lost his life and many others their private property, has not gone unrewarded, and that W.I.C.E.N. can look forward to an active future in Tasmania when emergencies occur.

In general, the Executive does not receive a great deal of information concerning the W.I.C.E.N. activities of the W.I.A. Divisions and I comment here for what it is worth that Federal Council should consider the appointment of a Federal W.I.C.E.N. Co-ordinator so that up-to-date information is received from and despatched to each Division and a proper file maintained on W.I.C.E.N. activities.

YOUTH RADIO SCHEME

The Youth Radio Scheme has continued to function throughout the Divisions and I believe is gaining some momentum in the smaller Divisions. I do not propose to dwell on this subject since it will receive quite a wide attention during the debate on several agenda items concerning Y.R.S. during this Convention.

I would like to say, however, that there seems to have been some misunderstanding regarding the appointment of a Federal Y.R.S. Co-ordinator isasmuch as a section of Federal Council have been under the impression that Keith Howard, VK2AKX, has officially held this office over the past twelve months. It is true to say that the Executive did write and ask Keith to take over this position in the absence of Rex Black, but a letter in reply indicated quite clearly that, whilst appreciating the honor of being asked, the offer was declined.

JAMBOREE-ON-THE-AIR

The 10th Jamboree-on-the-Air, held over the week-end, 5th and 6th August, 1967, was again a great success and my appreciation, on behalf of the W.I.A., is again expressed to those Amateurs who participated in this event for the World Scout organisation and opened their shacks for Scout groups to visit and operate on the air.

The Jamboree on this occasion coincided with the XII. World Jamboree in Idaho, U.S.A., and also with the 60th anniversary of the first experimental Scout camp which was held on Brownsea Island, England, in 1907.

HISTORICAL INFORMATION

I am happy to report that as a result of our representations last year, a good deal of historical information has been received by the Federal Historian, George Glover, VK3AG, who has again put a great amount of time into extracting relevant information. His report will be presented to Federal Council later in the proceedings.

OVERSEAS MAGAZINES

The handling of subscriptions to "QST," "73" and other overseas magazines has been most satisfactorily handled by Alf Chandler, VK3LC, on behalf of the Executive. The accruement from the small margin of profit gained from handling these on behalf of the editors and printers has adequately covered operating costs with some surplus available to augment Federal Funds.

DUTY AND SALES TAX

The problem of duty and sales tax applicable to Amateur equipment was "pushed" further this year but I regret to report without any immediate success.

A deal of correspondence between the Executive and the Hon. Allen Fairhall, M.H.R., VK2KB, Minister for Defence, was handled in reference to these two major problems. Allen Fairhall took both matters to the respective Departmental Ministers, but despite sympathetic hearing no real solution was found even at this level.

However, the Executive has been assured that further attempts will be made for some relief when the opportunity is presented. I would again like to record our appreciation of Allen Fairhall's effort on behalf of the Institute, particularly with the problems of sales tax and duty which have proved to be somewhat formidable.

TECHNICAL MERIT AWARD

In my report last year I recorded the outstanding accomplishment by Ray Naughton, VK3ATN, who created a moonbounce record with K2MWA/2 of 10,400 miles on 144 Mc.

On behalf of the Amateur Service in Australia I am proud and privileged to record here that Ray received the coveted A.R.R.L. Technical Merit Award for his effort, the first time this Award has been presented outside the United States of America. It was shared between VK3ATN and W. Bill Conkel, W6DNG. Since then Ray has repeated his earlier, but not record breaking contact, with K6MYC.

The Award was a handsome plaque inscribed "A.R.R.L. Technical Merit Award, presented to W. Bill Conkel, W6DNG—T. Ray Naughton, VK3ATN, for advancing the frontiers of Amateur Radio by proving communication via lunar reflection to be within the realm of convential Amateur operation."

I was privileged to confer the Award on behalf of the A.R.R.L. at the Victorian Division's annual dinner last year, and it was officially presented to Ray by Mr. E. J. Wilkinson, Acting Assistant Director General Radio, who was present as the representative of the Postmaster-General's Department and guest of the Victorian Division.

It is a tribute to an Australian Amateur and I believe it will not be the only time the Award will be presented to an Amateur in this country.

Hitherto unknown until recently was confirmation of a 144 Mc. distance record between Hugh Lloyd, VK5BC, and T. J. Kendrick, ZL2HP, on 23rd December, 1965, over 1,957 miles.

On 576 Mc. a record distance was spanned between Graham Lill, VK5ZJL/5, and John Hackworth, VK5QZ/5, an increase of 40 miles on the previous record between VK5ZTM/VK5ZFQ/5 and VK5ZIS/VK5ZJH/5 when 105.5 miles was spanned.

It will be to the credit of Amateur Radio in the years ahead that the accomplishments of individual Amateurs are recorded, which from historical records presently being compiled were to a great extent missing. I therefore would like to impress Federal Council with the necessity for notifying Executive with details of Amateur accomplishments in any field of our activities so that historical records can really be kept up-to-date for posterity.

AMATEURS IN THE TECHNICAL FIELD

We have all said time and time again over the years that Amateurs played an important part in the technical side of Australia's broadcasting, television and communications in general.

I was interested to find some substantiation of Amateur employment in the field in the staff journal of the Australian Broadcasting Commission—"Radio Active".

In Sydney a list of 29 VK2s comprised part of the Sydney staff and a similar quite long list, I believe, for Melbourne, which I was unable to obtain.

The Hobart branch of the A.B.C. operated an interesting club for Technicians-in-training known as Club 43 South—a reference to Hobart's latitude of 43 degrees south. The committee is entirely made up of T-in-Ts of which 16 currently are licensed Amateurs and one a W.I.A. shortwave listener.

The work of Amateurs in the technical field is of great interest and I believe we should

have our Federal Historian, George Glover, VK3AG, keep in touch with the editor of "Radio Active" to maintain an updated file on Amateur employment within the government broadcasting service.

I.A.R.J.S.

I recently was surprised—and at the same time honored—to receive an invitation to join an association which is only nine months operative and of which I had never previously heard.

It is known as the International Amateur Radio Journalistic Society (I.A.R.J.S.), essentially based in the United States of America, but reaching out to all countries where Amateur Radio is operative. Through the pens of writers, journalistists and columnists the aim of the association is to bring the stories of Amateur Radio in any country to the Amateurs of all other countries in an uncensored manner and free from outside factions and influence.

It operates under a completely democratic constitution and expresses the free view of Amateurs through the columns of its official publication "Dialog". From what I understand of the constitution of the Board of Directors, there are four Vice-Presidents who can be located in various Amateur organisations throughout the world. Currently, Al Shawsmith, VK4SS, an "A.R." columnist, is the third Vice-President of the Society, and it is through him that my invitation to join has been received.

Being a member of I.A.R.J.S. will in no way deter me from writing for "A.R." when there is something to write about. But it will serve admirably to fulfil a gap I have observed many times during my 18 years with the Federal organisation of the W.I.A. that we often do not know what is going on in Amateur activities within our own Divisions let alone the rest of the world. The aim of the I.A.R.J.S. seems to me a medium where this condition can receive considerable improvement.

"THE ROLE OF THE AMATEUR . . ."

During December 1967, I was invited with other Executive and Institute members to attend an evening at a lecture arranged by Air Commodore George Pither, VK3VX, for the Institute of Radio and Electronic Engineering (I.R.E.E.) of which he is a Melbourne committee member.

The speaker was Dr. Allen Butement, VK3AD, the immediate past Chief Scientist of the Department of Supply and currently Director of Research of the Plessy Group of Companies (Australia). His address was "The Role of the Amateur in the Development of Radio and Electronics".

This interesting address drew heavily on history—some of which I believe might never have previously been mentioned in "wireless records" and served the admirable purpose of reminding many of those present of the great contributions Amateur operators have made in the scientific field of radio communications. With tape recordings played during the address of living Amateurs from overseas who were involved in some of the early transmitting experiments and a demonstration by Air Commodore Pither of a SSB QSO between a VK9, a VK0 and himself located in the lecture theatre of the Royal Melbourne Institute of Technology (the venue of the lecture) a highly interesting evening was had by all.

For the purpose of W.I.A. Historical Records, I made a full track recording of the address, copies of which would be available to Divisions if they cared to arrange for a re-play of this address to their members. During supper, served at the conclusion of the evening, I was able to chat with a number of I.R.E.E. members who rated the address one of the most interesting they had heard. I believe this evening to be one of those excellent opportunities for rating Amateur Radio for what it truly is, and full credit goes to Air Commodore Pither for arranging it.

No doubt due to Institute members' interest in this address, I was privileged to receive an invitation from the I.R.E.E. for my wife and myself to attend the second Dunrossil Memorial Lecture at Wilson Hall, The University of Melbourne, on 12th March, 1968, where the speaker was the Rt. Honourable, Sir Robert Menzies, K.T., C.H., F.R.S., Q.C., whose subject was "The Post-Graduate Student". Although not a technical lecture, Sir Robert made many points which were applicable whether a student was doing art, medicine, law or communications.

From the number of Amateurs present, representing government departments, all branches of the services, industry and private enterprise in general, my belief was again confirmed of the worth of the Amateur in this country or any other country.

PROJECT AUSTRALIS

The Australian Amateur Radio Satellite Project Australis is still awaiting a launch in the United States of America where it was safely delivered during the year. The cost of transporting the unit was met from Federal funds. Due to the satellite eventually being attached to an American rocket, the launch date is "classified" but as soon as definite information is received Executive will be advised and in turn will advise Federal Council.

In the meantime the Australis team have been energetically engaged in making arrangements for its tracking. To assist in this an Australis Oscar-A Users' Guide has been produced, copies of which were forwarded to Divisions by Federal Secretary, John Battrick. Australis Oscar-A telementry Coding Forms and notes on how to use them were also circulated during the year.

Members Tonkin, Jenkins and Mace of the Australis team attended a recent meeting of the Executive, during which quite a long discussion took place on the present position of the Australis project, plans for a second satellite which will incorporate a 144 to 432 Mc. translator, and plans to arrange space in "Amateur Radio" magazine for articles on the project.

The latter appeared in the February and March 1968 issues and I trust many Amateurs will take an interest in tracking the Australis Satellite when it is eventually launched.

Further work progressed on the construction and testing of a 144 to 432 Mc. translator and a prototype was sent aloft on a balloon at 0605 hours on 28th March, 1968, from Mildura in Victoria. Interstate contacts of S9 signals were established and maintained for four hours, augmenting a bright future for the next Australis Satellite equipment.

Project Australis is a tribute to those Amateurs and others who have spent so much time and effort in making the project possible and I express on behalf of the Wireless Institute of Australia our appreciation of this effort and our pleasure in being associated with it. During the year two Executive members travelling abroad—Kevin Connelly, VK3ARD, and David Rankin, VK3QV, were able to visit Oscar Headquarters and co-operation between the W.I.A. and the Oscar organisation responsible for the launching of the Australis satellite was further cemented by this friendly personal contact.

FEDERAL CONSTITUTION

The further amendments to the draft Federal Constitution proposed at the 1967 Hobart Convention and subsequently ratified by all Divisions have been incorporated in the document which, together with all the necessary papers, have been handed to the firm of Messrs. Hedderwick, Fookes and Alston, and have personally been submitted to the Attorney General by Mr. S. McIndoe of this Company's staff.

At the time of writing this report I am doubtful that the completed Constitution will be available for presentation to Federal Council at this Convention, which fact I sincerely regret. Some delay has been occasioned by necessary discussions on a few minor points with the Crown Law Department, but I am assured that these will be resolved and Federal Council will be notified soon after this Convention when the document will be ready for circulation.

The finality of the time consuming task of writing this Constitution in a manner acceptable to all the State Divisions of the W.I.A. is a commendatory achievement and I express my appreciation to all those who were engaged with this project and to the forbearance of the members of the Federal Council with the many contentious problems which it was necessary to resolve.

The final adoption of a Federal Constitution will, I believe, be one of those great milestones for the advancement of this Institute.

TASMANIAN BUSH FIRE APPEAL

The appeal for donations to the Tasmanian Bush Fire Appeal was closed off with a total of $178, which Executive forwarded on to the Tasmanian Division. I would like to quote the reply received from the Honorary Secretary of the VK7 Division, Mr. E. A. Beard, VK7EB:

> "On behalf of the President, Council and members of the Tasmanian Division, please convey our most sincere thanks to Federal Executive for the generous donation for the Divisional Bush Fire Fund.
>
> "I am incapable of finding adequate words to express how deeply moved I have been concerning the assistance that has been extended by the various Divisions and individuals to those who suffered personal loss during the February fires of 1967.
>
> "I know I can speak for the Tasmanian Division when I say that it makes one feel proud to belong to an organisation which has members who helped financially and technically during the crisis.
>
> "Thanking you all once more."
>
> (Signed) E. A. Beard, Hon. Sec.

This brings me to the conclusion of the national part of this report and in doing so might I express my appreciation of the work carried out by all officers of the Institute and those outside the organisation who have assisted so capably throughout the year towards its smooth operation. It never is—and never will be—possible for the W.I.A. to function in a simple manner due primarily to the diverse nature of our activities requiring expertise in a wide range of accomplishments; it is therefore to the credit of all concerned that the quite complicated work of the Institute is almost entirely carried out in an honorary capacity.

INTERNATIONAL SPHERE

And now turning to the International sphere. On page nine of my minuted report to Federal Council at the 1966 Federal Convention I proposed three ways by which I considered the Wireless Institute of Australia could—and should—support the call for assistance from the International Amateur Radio Union for Member Societies to take an active part within their regions to vigorously promote Amateur Radio and maintain close liaison with their governments as major steps for the protection of Amateur frequency assignments against the world wide pressure for more frequency space by commercial and governmental transmitting services—especially in new and developing countries which are rapidly expanding their communication services.

The second step of the three propositions was "To convene within the next two years a conference of Region III. Amateur Societies". Items 4.2, 4.3 and 4.4 of the 1966 Convention were coincidental to the holding of such a conference and a motion arising from discussions on these items directed the Federal Executive to prepare a submission to Federal Council recommending a financial policy by which such a scheme—together with Amateur representation in general—could be implemented.

Federal Vice-President, Harold Hepburn, VK3AFQ (now retired), carried out an exploratory programme on this problem and came up with a calculated requirement of $10,000 per annum if the Institute was to do justice to carrying out the Region III. proposals being discussed by Federal Council.

His report was circulated to Federal Council and further discussed at the Hobart Convention in 1967 together with a somewhat complex and inter-related number of agenda items on Region III. affairs. Item 4.1.1 was minuted as a result of these discussions and Federal Council resolved that the Executive prepare a detailed submission suggesting a policy to be adopted in relation to the Amateur Service in South East Asia and the remainder of Region III.

With the Divisions on the one hand saying effectively that they could provide no further Federal finance, and on the other hand moving and agreeing to motions which directed the Executive to carry out quite extravagant plans —or at least formulate the plans for doing so— without such additional finance was indeed a formidable task.

However, Assistant Federal Secretary, Peter Williams, VK3IZ; Federal Secretary, John Battrick, VK3OR; and Federal Liaison Officer, Air Commodore George Pither, VK3VX, all submitted articles through "Amateur Radio" magazine which clearly set out the aims of the Institute for an effective plan in this Region.

The first major problem was how to bring the Region III. Societies together at the conference table. This had been attempted before and failed due, at the time, to problems of finance, the vast distances and cost of travel in this Region, the small Amateur population in many countries in the Region where Amateur Radio is encouraged, and a seemingly general apathy among the Region III. Amateur Societies to do anything at all.

However, over the past two or three years it has been evident that a greater awareness of the dangers to Amateur Radio has prevailed, not only in Region III., but world wide. The I.A.R.U. has actively demonstrated its latent ability to start things moving in the right direction. And the Federal Council with its Federal Executive has supported moves to take active interest.

And so this time, when contact was made with Region III. Societies, there was an excellent response, indicating a genuine desire by many societies to hold an inaugural conference in this Region if it could be arranged. Fortunately for the W.I.A., Executive member David Rankin, VK3QV, was travelling abroad last year for the Company by whom he is employed, and was given letters of introduction for the purpose of visiting N.Z.A.R.T., J.A.R.L., R.S.G.B., I.A.R.U., A.R.R.L. and others. His report of an enthusiastic reception everywhere he visited, with several firm promises that certain organisations would be prepared to pay the air fare of representatives to a Region III.

Conference, was really responsible for an immediate plan to organise for such a conference to be held conjointly with the normal Federal Convention in Sydney this year.

Federal Secretary, John Battrick, and Assistant Federal Secretary, Peter Williams, followed up David Rankin's liaison work with correspondence, information bulletins to overseas societies and contacts on the air on regular schedules with the South East Asia net and direct schedules with R.S.G.B. and A.R.R.L.

At this point I wish to record, on behalf of members of the Executive and the Federal Council, my sincere appreciation for the time David Rankin gave to carrying out such successful liaison work at the expense of using his own time when engaged on an extensive business tour.

To me this is a remarkable achievement in a short space of time. Although it has not been possible to have representatives from many of the Region III. Societies, I am hopeful that the results from a meeting of the major Societies will result in ways and means being found by which the Amateur Service will grow in the technically under-developed nations of this Region so that regular conferences can be held to which many of the smaller societies may then be able to attend. We have a wonderful opportunity to enact "big things" for the future of Amateur Radio in this area of the world and we should make the most of it. I will have great pleasure later on this evening in welcoming the overseas representatives on this historic occasion.

We should make the most of it because we also have the current opportunity of gaining substantial support from the Australian Government. The late Prime Minister Holt had determined a policy of substantial aid to Asia. Prime Minister Gorton is pursuing this policy as evidenced by his recent statement when speaking in Hobart to a conference of the Associated Chamber of Commerce of Australia when he said, "It was vital to Australia's future to build up the economies of the countries closest to us, and to lift the living standards of the people of these countries."

I believe the policy of the W.I.A. to assist the under-developed countries in Region III. by introducing the Youth Radio Scheme and possibly supplying students with component parts to augment their training as a stepping stone to the introduction of Amateur Radio as a technological resource, is in line with present day government thinking.

The government's home policy also supports educational advancement. Prime Minister Gorton, when speaking at the same conference, said, "I know you will want us to devote more and more resources to improving educational facilities for youth, particularly in the field of technology."

If, therefore, we can gain government support for the purposes of strengthening the Y.R.S. at home, then we will have more to give to Asian countries and be better able to do it. In the overall pattern I believe we have tremendous opportunities at this stage in Australia's history to prove to our government the findings of the Stanford Research Institute—that Amateur Radio IS an international resource for technological, economic and sociological development. If we can successfully do this using every expedient we can command, then I am certain we will have planted the seeds for the future unassailable establishment of Amateur Radio in this country, and indeed, in all countries in this area of the world.

In conclusion, might I express my appreciation to all those who have given so much of their time to the administration of the Wireless Institute of Australia, and to all those who have contributed to other than its administrative activities. Amongst these people I include all the past officers with whom I have worked over the last 18 years, most of whom are still with us and enjoying an up-graded Amateur Service in the growth of which they so capably assisted.

To those remaining on "active duty" I reluctantly say farewell but not goodbye. I hope to frequently have QSOs with you all and when the opportunity exists to have eyeball QSOs as well. To the Wireless Institute of Australia as a whole I extend my sincere wishes for its continued success and my appreciation of what it has given to me through my association with its Executive organisation.

Thank you, gentlemen.

G. M. Hull, Federal President W.I.A.

WIRELESS INSTITUTE OF AUSTRALIA—FEDERAL EXECUTIVE

BALANCE SHEET
as at 29th February, 1968

1967			1968
	CURRENT ASSETS:		
	Commonwealth Savings Bank—		
$6,600	Federal Executive Account	$7,652.40	
637	Publications Account	986.88	
553	Sundry Debtors	263.35	
362	Stock on hand—at lower of cost or market value	441.84	
49	Prepayments—Convention	49.00	
			$9,393.47
$8,201			
	FIXED ASSETS:		
1,210	Furniture, Fittings and Equipment—at cost less depreciation		1,132.56
$9,411	TOTAL ASSETS		$10,526.03
	Less—		
	CURRENT LIABILITIES:		
$752	Reserve Fund	$752.00	
4,222	I.T.U. Fund	5,414.87	
58	Australis Project	—	
13	Prepayment—Publications	—	
			$6,166.87
$5,045			
	ACCUMULATED FUNDS:		
$3,539	Balance, 1st March, 1967	$4,365.65	
—	Less Deficit for year	6.49	
827	Plus Surplus for year	—	
			$4,359.16
$4,366			

AUDITORS' REPORT

We have examined the books and vouchers of the Wireless Institute of Australia (Federal Executive) for the year ended 29th February, 1968. In our opinion the accompanying Balance Sheet is properly drawn up so as to give a true and fair view of the state of the affairs of the Federal Executive as at 29th February, 1968, and the attached Statement of Income and Expenditure is properly drawn up so as to give a true and fair view of the results for the year ended 29th February, 1968.

Melbourne, 5th April, 1968. Hebard & Gunning, Public Accountants.

CONVENTION FUND

1967			1968
—	Amount Recoverable 1966 Convention brought forward		$277
	Add Expenses:		
$1,259	Fares	$1,061	
288	Accommodation	429	
150	Official Dinner	151	
228	Other Meals	35	
60	Freight and Sundries	7	
248	Typing, Duplication of Minutes	292	
54	Postage, Stationery	4	
24	Rent, Convention Rooms	20	
			1,999
$2,309			$2,276
	Less Receipts:		
$2	Bank Interest		—
2,030	Amounts Recovered from Divisions and Others		$2,255
$2,032			
$277	**Deficiency to be recovered from Divisions**		$21

STATEMENT OF INCOME AND EXPENDITURE
for Year ended 29th February, 1968

1967			1968
	INCOME:		
$147	Interest Received		$214.98
1,116	State Contributions—per capita		1,156.90
495	Surplus Publications, Badges		317.40
$1,758			$1,689.28
	EXPENDITURE:		
$31	Audit Fees	$31.50	
136	Depreciation	133.00	
35	Awards, Contest Committee	84.93	
5	Floral Tributes	10.00	
188	General Expenses	203.20	
16	Insurance	16.55	
2	P.M.G. Licence	2.00	
54	QSL Bureau	41.19	
13	Maintenance, Office Equipment	39.05	
10	Subscriptions	30.68	
261	Stationery, Postage and Telephone	506.76	
100	Salaries	303.00	
—	Travelling Expenses	108.00	
20	Youth Radio Scheme	18.00	
—	I.T.U. Expenses	8.40	
—	Project Australis	115.43	
—	Badges	44.08	
36	Advertising	—	
12	Federation Expenses	—	
12	Oscar Project	—	
			1,695.77
$931			
	Deficit for Year 1967/68		$6.49
$827	**Surplus for Year 1966/67**		

STATEMENT OF MOVEMENT OF FUNDS
for Year ended 29th February, 1968

Total to 1967			Total to 1968
	INTERNATIONAL TELECOMMUNICATIONS FUND		
$69	**Balance Old Fund**		$69
	Add Contributions 1968:		
$872	New South Wales	$300	1,172
800	Victoria	500	1,300
877	Queensland	—	877
708	South Australia	392	1,100
496	Western Australia	—	496
400	Tasmania	—	400
$4,222	**Balance carried forward**		$5,414
	AUSTRALIS PROJECT		
—	**Balance brought forward**		$57
	Contributions:		
$80	New South Wales		—
70	Victoria		—
72	Queensland		—
50	South Australia		20
70	Western Australia		—
20	Tasmania		—
35	Donations		—
$397			$77
$340	**Expenditure**		$192
$57			
	Deficit transferred to Income and Expenditure A/c.		$115

VHF

Sub-Editor: CYRIL MAUDE, VK3ZCK
2 Clarendon St., Avondale Heights, Vic., 3034

Activity on both 6 and 2 metres appears to be at an all time low in most States, but the apparent trend appears to be in constructing new equipment, mainly s.s.b. and r.t.t.y., but a new field of activity is v.h.f./u.h.f. translator suitable for satellite or link use and an experimental satellite unit has been tested via a high altitude balloon and judging by the quality of signals received it appears to be a very successful unit. If Amateurs in other States are working on similar or other interesting devices of equipment I would appreciate a short note describing the gear and the uses it is proposed to be used.

A change of subject now. News for "A.R." should reach me by the dates as follows: July "A.R." May 24; August "A.R." June 28; Sept. "A.R." July 26; October "A.R." Aug. 30; Nov. "A.R." Sept. 27; Dec. "A.R." Oct. 25; Jan. '69 "A.R." Nov. 29.

Keep the news coming in chaps. 73, Cyril VK3ZCK.

HUNTER BRANCH

2 mx: This band was very good over the Christmas period with good openings to Sydney. On most evenings a contact with Sydney could be obtained. Active stations include VKs 2ZSG, 2YJ, 2ZCT, 2ZWM. Conditions have fallen off since January, but a little DX can still be worked. Most of the locals can be heard on Monday night after the Hunter Branch broadcast when about a dozen stations come in for the call-back.

6 mx: This band has been poor, over the Christmas period there were no openings of note, although most States were worked. The band folded up in the middle of January, and since then no DX has been worked. The only activity lately has been on Saturdays and Sundays, when two or three can be heard. 73, Mac VK2ZMO.

VICTORIA

Activity above 52 Mc. in the past months have been low, with DX on all bands scarce. Even with this lull new call signs still are appearing on the bands.

6 mx: DX on this band is the worst I have ever heard, but still contacts can be had on Saturdays and Sundays and any time on the net. Even though fellows get on 6 and use it even once a week is enough but more signals below 53 would be appreciated.

2 mx: The number of new call signs on the band is increasing, plus a number of old calls with new and improved equipment. Modes such as sideband and r.t.t.y. are appearing in greater abundance. Most r.t.t.y. is on f.m. nets above 146 Mc. S.s.b. is used within the a.m. section below 145 Mc., only a few are v.f.o., but the number is slowly increasing.

70 cm.: There are more stations appearing every month, providing quite a large group for the nightly schedules at 8.15. A ten-second break is left between overs so that you can break in and you are set for at least four or five new calls for the log. Regulars on the band these days include VKs 3ZER, 3AY, 3ZRG, 3ZBZ, 3ZYT and 3AUX. So get on this band and help populate it.

On 28th March a balloon was launched from Mildura containing a package designed for Australis-Oscar II. The unit consisted of a transverter receiving 146 Mc. f.m. Channel B and re-transmitting on 432.15 Mc. with a three watt output power. The balloon rose to a height of 104,000 feet before being dropped by parachute to land 4½ hours later. Ken VK3AKK and Ron VK3ZER maintained contact via the transverter with Les VK3ZBJ mobile in Mildura.

Listeners in VK2 and VK5 monitored the frequency trying to make contact, while in Melbourne VK5s were heard working each other. Signals remained very good throughout the experiment with both voice and slow scan facsimile being tried. This is obviously a historic event, being a large step forward on the part of the Australian Amateur in keeping pace with the rest of the modern Amateur world.

Congratulations should go to all those concerned and to those who helped to make the experiment such a great success. With the now reduced Morse speed, more Z calls are changing over to full calls, one of the first was Robert 3ZVV, now 3AOT; although active on the low bands with his new call, he still has maintained an interest in v.h.f. and is active on 6 and 2 mx a.m.

Have you any good ideas for the location for the 1968 V.h.f. Group Convention? If so, let Noel VK3ZPQ, the Secretary, know. Also, if you have any suggestions for activities, they would be appreciated. We do wish to maintain the high standard as set in previous years. 73 and best DX, Robert VK3ZPX.

Eastern Zone.—52-54 Mc.: M.u.f. peaked for the month over week-end 23rd, 24th March, but no 6 mx openings. Some local activity on the 53.032 Mc. a.m. net between VKs 3ZQC, 3ZCG, 3ZDP and field day station 3ZGS portable at Mt. Donna Buang.

144-148 Mc.: No DX other than field day station contacts, and normal 2 mx f.m. net activity which is on the increase, Channel C also now being used. 73, George VK3ZCG.

SOUTH AUSTRALIA

Our former scribe Colin 5ZHJ has temporarily retired—due to wedding bells. From the next issue I hope there will be someone with fresh ideas; this month it's mine.

A variety of t.v., f.m., r.t.t.y., a.m. and other carriers from Asia between 47 and 51 Mc. are to be heard occasionally at good strength, but few JAs to be heard. Drought conditions in S.A. are increasing the level of power leak, consequently much 6 mx activity has decreased.

Regret that VK5 activity during National Field Day Contest in Feb. was poor. There are hopes for quite an exodus of stations to go out portable next year to rival the splendid efforts of the VK6s, about 11 of whom worked into VK5 on 6 mx from portable locations. The Elizabeth Club station 5LZ had a breakdown on 2 mx, so lost quite a swag of contacts. I spent the night on a lonely mountain top ready for the next morning's 2 mx DX. Worked 17 stations, running 15w. to 10 el. beam.

Mick 5ZDR, now at Tantanoola, S.E., worked 78 stations in his first week of operation. Contacts to Melbourne and Adelaide are consistent and hears the VK7 beacon from time to time; at time of writing no contacts made to VK7.

Rod 5ZSD and Charles 5KW currently putting finishing touches to 576 Mc. gear to capture the record for that band from the new record holders, John 5QZ and Graham 5ZJL. The former gentlemen also have gear for 1296 Mc., but were staggered to learn the present record for 1296 Mc. in New Zealand is 126.2 miles, recently set up from the previous distance of 14 miles.

The annual meeting of the VK5 V.h.f. Group resulted in Chairman, Eric 5ZEJ; Vice-Chairman, Edwin 5ZTS; Secretary, John 5QZ; Council members Barry 5ZMW and Rick 5ZFQ. Brian 5TN addressed the gathering after the business on long range tropospheric propagation which was able to produce communication of reasonable consistency on frequencies as high as 1769 Mc. and over distances in excess of 1,000 miles, and produced typical weather maps which could be used as pointers to such propagation. Subsequent to the annual meeting, the V.h.f. Council met and drew up what is hoped will be an interesting syllabus, to be published in the VK5 Journal.

Peter 5ZKA is now resident in N.S.W. A good v.h.f. operator who will be missed from this State. John 5ZDZ is back from Canberra and living at Port Pirie and joins the Northern Net which is being formed on 146 Mc. f.m. Jim 5ZMJ at Port Pirie is already having contacts into Adelaide on 146 Mc., using vertically polarised beam. Ian 5ZIW has shifted from Price to Whyalla and also will be in the net.

2 mx is quiet, very quiet indeed. Occasional contacts across to Western VK3, largely by Tony 5ZDY, well placed in the Adelaide Hills. A number of the more consistent 2 mx operators are now learning c.w. May could be a very busy examination month. Till next month and a new scribe, 73, Eric 5ZEJ.

NORTHERN TERRITORY

Once again 6 mx is open to the North after a very bad season to the South. The band has been opening regularly at 9 p.m. local and closing at about 11.30 p.m. local time. Possibly the best signals have been coming from Ueda JA2GVW, Al KR6TAB, Jim KR6UY, Yama JA0SX and Hideo JA1TFJ. Another station worth looking for is KH6CH portable KW6, who operates on about 50.4 Mc. Worthy of note is the number of JAs who are on the band using s.s.b. rigs, probably a dozen or so.

KR6TAB and myself on 23/3/68 had an hour QSO in which Al dropped his power input from 80w. to 5w. for part of the time and was still copyable at about 4 x 3. Al said he had had a nice QSO with VK9ZBB who was running about 3w. into a 6J6, a converted taxi tx.

In closing, I might add that I am still looking for a JA8 to complete my WAS-JA; won't somebody please help? 73 and good DX to all you other v.h.f. addicts, VK8ZMR. P.S.—we are minding our Ps and Qs now that we have an RI.

— • • • —

V.H.F./U.H.F. STATE RECORDS MARCH 1968

(Australian Records in bold type)

Mc.	Calls	Date	Miles
NEW SOUTH WALES			
50/52	VK2ADE to VE7AQQ	8/4/59	7320
144	VK2ZMR to ZL2AAH	8/1/65	1410
432	VK1VP/1 to VK2ZPT	14/6/65	178
576	No claim		
1296	**VK2ZAC to VK2ZCF/2**	**4/3/64**	**46.8**
VICTORIA			
50/52	**VK3ALZ to XE1FU**	**1/5/59**	**8418**
144	VK3ZNC to ZL2HP	13/12/65	1673
432	**VK3ALZ to VK5ZDR**	**28/5/66**	**402**
576	**VK3AKE to VK3ANW**	**11/12/49**	**80.7**
1296	**VK3ALZ to VK3AUX/3**	**10/4/66**	**25.6**
2300	**VK3XA to VK3ANW**	**18/2/50**	**9.0**
3300	**VK3ZGT/VK3ZGK/3 to VK3ZDQ/3**	**14/12/63**	**63.5**
QUEENSLAND			
50/52	VK4ZAZ to K6ERG	16/3/58	5305
144	VK4ZWB to VK7ZAO/VK7ZAQ	9/1/65	1117
SOUTH AUSTRALIA			
50/52	VK5KL to W7ACS/KH6	26/8/47	5361
144	**VK5BC to ZL2HP**	**23/12/65**	**1957**
432	**VK5ZDR to VK3ALZ**	**28/5/66**	**402**
576	**VK5ZJL to VK5QZ**	**28/1/68**	**145.7**
1215	VK5LA/5 to VK5ZCR/5 (now VK5EK)	4/1/62	1.0
WESTERN AUSTRALIA			
50/52	VK6BE to JA8BP	30/10/58	5490
144	VK6ZCN to VK5ZHJ	8/1/65	1330
432	VK6ZDS to VK6LK/6	25/4/66	66.5
576	VK6ZDS/6 to VK6LK/6	15/12/63	101.2
1296	No claim		
TASMANIA			
50/52	VK7LZ to JA9IL	3/12/59	5462
144	VK7ZAO/VK7ZAQ to VK4ZWB	9/1/65	1117
432	VK7LZ to VK3ZDM	8/1/66	312
	No other claims		
AUSTRALIAN E.M.E. RECORD			
Mc.	**Calls**	**Date**	**Miles**
144	**VK3ATN to K2MWA/2** ..	**28/11/66**	**10417**

N.B.—This contact is also the present world record contact for 144 Mc.

—D. H. Rankin, VK3QV,
Federal Activities Officer

W.I.A. V.H.F.C.C.

Additional Members

Cert. No.	Call	Confirmations 52 Mc.	144 Mc.
40	VK3ZGZ	104	—
41	VK7ZAO	145	—
42	VK2UQ	109	—
43	VK4PU	112	—
44	VK3AMK	131	—
45	VK4ZPL	113	—
46	VK3ZNJ	129	—
47	VK3ZNJ	—	217

W.I.A. 52 Mc. W.A.S.

Additional Members

Cert. No.	Call	Addt. Cntr.
78	VK3ZNJ	2

DX

Sub-Editor: ALAN SHAWSMITH, VK4SS
35 Whynot St., West End, Brisbane, Qld., 4101

All bands are open and working. Signals aplenty, day and night. Only 3.5 Mc. seems to be dragging its feet DX-wise. Ten is open from 2000 to 1100z. Fifteen and twenty almost around the clock, and 7 Mc. is letting a rare one or two through at 0700, 0930, 1700 and 1900. As evidence of the improved conditions, signals in the main are stronger and stand out from the noise level. Many good'uns are easily workable. Have a listen and prove it yourself.

NOTES AND NEWS

Mariana Is.: KG6SK 21312 1200. QSL P.O. Box 48, Capital Hill, Saipan.

Tristan da Cuhna: ZD9BE 28550 1550, 21280 1730. QSL via GB2SM.

West Carolines: KC6CF 14170 1400z.

Nauru: VK9RJ on now 14180, 0700, will be using other bands.

Kure Is.: KH6EDY 14160 14220, 0900z.

Solomon Is.: VR4EK 14160 14220 1000z, only one on s.s.b. VR4CR 14030 1000z.

Antarctica: Ian ZL5AA reported on 14 c.w./s.s.b. some days at 2002 and 0800z.

Afghanstan: YA1DAN QSL KP4CL QTH Kabul 14200, 1400z.

Franz Joseph Land: UA1KED 14105 0100 1300.

Sth. Shetland Is.: CE9AT 14058 and 14130, 21302. QSO CE3ZN if you want a sked. CE3ZN acts as M.C. and is usually on or near his frequency.

Marshall Is.: KX6GJ 14240 1130z. QSL P.O. Box 8515, A.P.O. S.F. 96555. He is on Roi Mainer Is. and the only operator there.

Nova Zelma: UA1KFT 14011 0100z and from 1800z; might be granted DXCC status.

Timor: Rumour has it that VK8AV and VK8HA are still trying to obtain a licence for here. Activity was intended for April or even May. If it does come off, as many VKs as possible will be worked.

Azores: CT2AA 14112 14160 21305 3790. For 20 mx try around 1600z. QSL P.O. Box 215, 1936 Comm. Sqdn., A.P.O. N.Y. 09406.

Wallis Is.: FW8RC appears to have been QRT but now reported active again on 21065 and 14010 0800z.

Syria: YK1AM 14110 1200. QSL YK1AA, Box 35, Damascus.

Indonesia: PK1SH said to be active again 14040. Also the call 8F1SH is being used. Several others on s.s.b. from the various districts, such as PK7 and PK8, etc. PK1AA 28002 0000z. QSL to PK1SH at Box 2127.

Caicos Is.: VP5AA 28600 1500. QSL W1WQC.

San Andres: HK0AI c.w./s.s.b. 14, 21, 28. HK0BI 14115 0730. HK0KW 21320 1800.

Gough Is.: ZD9BH 14100 c.w. 1730.

Cuba: CO8RA 14198 1300.

Leosotho: 7P8AB 14050 21045 1900.

Anguilla: VE3CUS/VP2 14190 1155. QSL to VE3ODX.

Greenland: OX3EL 14150 1135. QSL OX3EL, Upernavil, N.W. Greenland.

Rio de Oro: EA9EJ keeps the ball rolling with activity on 14315, 21280, 1800. Does use c.w. also as worked here on 14080 1930.

Rio Muni: EA0TU 21040 0900. 28700 1030. 21300 1420. 21200 1540. 14116 1905.

Guernsey: GC8HT seems a perennial DXer. He sticks to close routine of certain bands on set days. An s.a.e. will bring you advance info on his activities—1.8 to 28 Mc.

Iran: EP2DA 14190 kc. at 1330z, listening up 35 kc.

Italy: Exotic to say the least are the calls of the following: I6FRU, 2212z on 14036, I8CLC 14017 at 0143z.

Malagasy: 5R8AS 14211 1300z.

Maldives: VS9MB 14080 kc. at 1130z.

Rwanda: 9X5AA on 14190 at 1520z, and 9X5AV 14170 at 2135z. QTH as Box 104, Kigali, Rwanda.

Svalbard: JW2BH is on from Bear Island.

United Nations, Geneva: 4U1ITU, 14150 kc. at 2025, plus all other bands and modes.

Turkey: TA1VY 2210z on 1400, 5 kc. and heard on 7007, 1920z.

Wrangel Is.: UA0KIP 1442z on 14043 kc. Maybe this will again be counted as separate country.

Tierra Del Fuego: CE0PG 14205 kc. at 0220.

Sudan: Sid ST2SA 28610 s.s.b. 1104, 14078 c.w. 2220. Dr. Sid Ahmed Ibrahim, P.O. Box 244, Pt. Sudan.

Argentine Is.: VP8JT 14127 s.s.b. 2106. QSL via VE1AFJ. VP8JI also QRV. VP8IU/G3SFN now QRT.

Arctic Zone 40: UA1KED Weather Station, Alexander Is. Franz Josef. UP0L6, UP0L7, UP0L8, UP0L9, UA1KAE, UA1KAE/1, KAE/2, /3, /4, /6, /7 all Arctic. (Don Grantley).

Cocos Is.: Requesting QSLs to his home address with s.a.s.e. and I.R.C. is WA6OKN, who recently operated as TI9AM from Cocos Is. Address is 1933 Coventry Ct., Thousand Oaks, Calif., 91106. Also holding a licence is VK9KC, C. M. Hayes, C/o. D.C.A. No sign of activity as yet.

Norfolk Is.: VK9RH, Ray Hoare, Box 97, Norfolk Is., still very active, 14187 0700 and 14246 0730.

Botswana: 80 A-Z is the call sign allocated to Botswana or Bechuanaland.

Chagos: VQ8CDC 14008 1600z. Also uses 14024.

Ocean Is.: VR1L, Bob Lusk, Ocean Is., Central Pacific, frequently heard 14187, 14272, 14172, 14270 from 0600z onwards. QSL manager is K6UJW.

Cayman Is.: DXCC credits for ZF1DX by K6KDS are being held up by the A.R.R.L. at the time of writing this. Proof of licence, location, etc., has been requested. There has been pirate activity of this call.

Uganda: 5X5JK 21350 1700. P.O. Box 181, Kampala.

Saudi Arabia: HZ1AB 14211 2100. QSL A.P.O. 09616, New York.

St. Pierre: FP8CY 14180 0330. C/o. Chief of Telecommunications.

Corsica: F9VN/FC 14054 2250.

Canary Is.: EA8CI 14206 2300. QSL K4DI.

Burundi: 9U5CR and several others are QRV 21 s.s.b. 1700-2100.

French Guyana: FY7WH 14168 2300.

Mexico: The 4A1, 4A2, 4A3 calls commenced on March 21 and will last till Dec. '68 to commemorate the Mexican Olympics. There's an award offering for those who can work 100 of these stations. (VK4UC).

Mongolia: JT1KAA 14024 kc. at 0150z. JT-1AH 14061 kc. at 0200z. QSL both via JT1KAA (W2NUT).

Items used above by courtesy of LIDXA, Fla. DX'er, "Air Waves", ZL2AFZ, N.Z. DX Editor, VK4UC, Don Grantley.

ACTIVITIES

Barry VK5BS has been QRL building up a 160 mx rig but managed time for these on 14 c.w.: VO1FB, 6Y5GS, HC1GC, VR3DY, YV-5CKJ, JT2AB, FG7XX, K7BTN/KL1 (Barter Is.), G5WP, VU2AYZ. (In an earlier issue of these notes I gave Barry the designation of a Woomera technician. This is substantially not correct. Sorry I "goofed" OM.—Al.)

Ken VK3TL has found another love, namely flying light planes, but couldn't resist knocking off a few raries on 14 c.w./s.s.b.: K8NHW/XV5, HK0BKW, 8R1S, TJ1AG, 9X5AV, AP2SG, MP4MBC, 9U5BB, 9Y4VT. Best QSLs received: YN2JS, LZ2KKZ, CE8AA, EL8B, TJ1AG, CR-7CI, CE0PC, PK8YAK, EA8CG, TG5HC. (It's the Flying Hams' Club Award for you Ken OM. Please write for partics.—also any others interested.—Al.)

"KK" VK6IZ sends in quite an impressive list of activity on all bands, 80 through 10, s.s.b./c.w. On ten the best time in VK6 it seems is from 1000 to 12000 and these were worked: G3VYF, UC2AFC, YO2IS, OK3QF, UL7GO, SM3EVG, DM2AKL, ON4FL, G3IVG, DL4PV, G3TZU. 21 Mc.: DK1IZ, UH8BO, YV5BPJ, CO2BB, HL9KG, HC4WA, YS2OB, UA0LL, UA9BZ, KA2SW, LA4DJ, UA4KZZ, XW8BX. 14 Mc.: VP8BP, EA8FG, HB9AZK, PJ2CZ, F8DR, YU2HA, LU4IMG, GM5AIF, KP4AST, ZS6TE, 6W8OT, SP9BNY, UV0ED, KV4CI, YV5BNR, UA0KCS, VR4CR, DJ8NB. 3.5 Mc.: many Ws worked between 1100, 1200.

Dud VK4MY reports the DX fishing rather good at the Gold Coast, but says also that a few choice ones got away. On 14 s.s.b.: VR3DY (Fanning Is.), K0UXZ/KS6 14230 1035, OE1GWA 14112 0645, HK0BKZ (San Andreas Is.) 14150 0700, UB5KTF 14200 0700, ZS1DC 14270 0500, GC8HT 14180 0750, VE8BB 14180 0615, UG6AW 14190 0620, W6TNS/TA 14110 0515, LZ2KKZ 14170 0605, OK1FV 14140 0600, VK0JW 14150 0700, PX1PA (Andorra) 14110 0730, EI7BN 14110 0750 (QTH 84 Goat Town Rd., Dublin 14). On c.w. JT2AB 14040 0945, LA6U 14070 0700, ZB2F 14060 0800, VR3DY 14005 0640, UQ2MU 14080 0630, JT1KAA 14040 0900, EA8FE 14070 0645, VP7NF 14040 0700, VP7DX 14050 0500, PZ1CP 21050 0600, 9J2VB 14005 0500, 5Z4SS 14030 0550, FB8XX 14140 1035, VU2FC 14030 1100, KX6GJ 14240 1130, 5N2AAF 14040 0640. Dud reports that information received indicates that VR4EK might well be a pirate.

Peter VK4PJ indicates that all bands are open, but says 10 is a little quiet. On s.s.b. the following were picked up: Ten—DL2TH, DL9KU, DM2AFO. 15 mx: EP2DW, UA3AM. 20 mx: F2PI, DJ1PB, F5IN, IS1VAZ, F9PT, F2MO, EA3OF, F2SF, G3SZX, OH2OT, VE4EK, TJ1AB, VE0NT, GW3AX, OZ4ZR, 4A2TH, FC2CD, 4A1BC, IT1TTH, DL1TG.

Peter VK3APN, whose big sig on 80 and 40 is very familiar, sends in this list as proof of DX still available on these bands. 7 Mc. c.w.: CE1FF 0750, EP2BQ 1800, ET3FMA 1800, FM-7WO 0900, HP1JC (worked on d.s.b.) 0800, LU8DQ 0915, LU8PB 0900, PJ2MI 1000, PJ3CC 0745, TG0AA 0845, TI2PZ 0800, VQ8CC 2000, VQ9B 1410, XW8BP 1230, XV5PC 1900, ZD5X 1410, ZS1JA 2000, ZS6CN 1440, 4S9BW 1940, 5R8BA 1620, 5W1AZ 1210, 9J2BC 1950. On 3.5 Mc.: KC4USG 1215, KG6AAY 1000, KH6EBQ 1330, KL7PI 0915, KZ5GN 1115, VQ8CBB 1355, VQ8CBR 1315, ZS5QU 2020.

David VK3QV reports 10 mx open as evidenced by the following list: ET3REL (QSL via W5LEF), G3MCG, G3OZU, HR1HC, JA-1PEB, JA2INQ, JA2JRE, JA8CAR, JA8CDE/JA1, KL7EFR, OD5EP, OH2ZD, OH5SM, VU2JM, VE2AJ, VE2BV, VE4GN/4, VE5KR, VE5US, VE6LU, VE6ANR, VE7EH, VE7QV, 7BDI. All W/K call areas several times over.

Chas VK4UC, picking off the best ones, logged these—c.w. 20 mx: AP2AR (East Pak.) 1400z, JT2AB 1100z, 6Y5GS 1200z, HM9BI 1000z, ZF1DX 0745z, GM3ITN 0800z, VP7DX 1000z, YS1XEE 1230z, 5Z4KL 1345z. S.s.b. 20 mx: MP4DAT 1230z (QSL G3USK), ZF1RD 1300z (QSL K8LSG), GC2FMV 0800, ZD7KH 0800z, VP2VO (ex VP2KD) 1200z, 9Y4JR 1200z, CE9AT (Sth. Shetlands) 1236z, YA1DAN 1145z, 7X0AH 0730z, VE8ML (Zone 2) 0830z, VE3CUS/VP2K (Anguilla) 1135z, 6W8DY 0800z, VK9RJ (Nauru) 1300z, K8NHW/XV5 1100z, KH6EDY (Kure Is.) 0830z, VR4EK 1050z, KM6BI 1100z, ZL5AA 0900z.

It is gratifying to receive so many reports this month. VK activity is markedly improving. Peter VK3APN draws attention to the good DX available on 7 Mc. and asks that more publicity be given to it. (Will try OM.—Al.) Dave VK3QV says try a CQ if 10 mx seems dead, the result might surprise you. (I agree. —Al.) Peter VK4PJ wants QTHs of TJ1AB, 9K2BV and FC2CD. Anyone help please?

SOME QTHs

VP8JD—G2RF.
8P6AO—VE3DLC.
8P6AY—W4OPM.
8P6BU—WB2UKP.
9Y4DS—K9LKR.
9Y4VT—W3DJZ.
FB8XX—FR7ZD.
VP2GRC—VP2GW.
VP2ME—W3KAU.
7P8AR—W4BRE.
7Z3AB—W4YDD.
ET3FMA—W7WLL.
TA2FM—DJ2PJ.
SV0WL—W2CTN.
CT2AS—G2MI.
3C0MY—VE1 Bureau.
AP2CR—W7VEU.
CN8HQ—KH6DZR.
CP0DJ—K0WGY.
SV0WJ—K4BNI.
TJ1QQ—W4DQS.
VP5AA—W1WQC.
YA3TNC—W3TNC.
JY6GVM—W6GVM.
PJ3CC—W3AYD.
9X5CE—ON5AM.
TU2BQ—DJ6GLA.
SV0WV—W3MOJ.
K8HNW/XV5—W6FAY, Box 11173, San Deigo.
AP5HQ—Comd. Sig. Training Centre, Kohat, Cantt. W. Pakistan.
YN1MO—M. Murciano, Box 925, Managua.
ZS9H—P.O. Box 17, Gaberones, Botswana.
6W8DX—P.O. Box 347, Dakar, Senegal.
VP2GAR—P.O. Box 201, St. George, Grenada.
TR8AH—Box 3122, Libreville, Gabon.
BV2A—Box 101, Taipei, Taiwan.
HZ3TYQ—Box 1721, Aramco, Dhahran, Saudi Arabia.
TR8AG—Box 157, Libreville, Rep. of Gabon.
UA1CK/JT1 and JT1KAA—Box 639, Ulan Bator, Mongolia.
CR6AD—Box 13, Caconda, Angola.
3V8BZ—DL7FT, Box 99, Munich, Germany.
5W1AA—Box 498, Apia, W. Samoa (ditto for 5W1AS).
8R1C—Box 739, Georgetown, Guyana.
9M6JP and 9M6MG—R.A.F., Labuan, Sabah, B.F.P.O. 660.
HS4AK—P.O. Box 2008, Bankok, Thailand.
5U7AK—Rev. Dave Keppel, Protestant Mission, Tera, Niger Republic.
TF2WKM—P.O. Box 27, F.P.O., N.Y., N.Y. 09571.
YK1AK—P.O. Box 35, Damascus, Syria.

ARMED FORCES DAY—U.S.A.

Scheduled for 18th May, 1968. The Communications Section of the Army, Navy and Air Force will conduct tests—QSOs with Amateurs throughout the world. There will be a code receiving test at 25 w.p.m. for which a certificate will be issued to those successful. There will be a similar r.t.t.y. test, plus military to Amateur cross-band tests and QSOs.

Some of the Armed Forces frequencies will be 4001.5, 4020, 6992.5, 7325, 14405. Time for the receiving test is given as 1930z and can be copied on the following frequencies: 3347 and 6992.5. Listen for the above and make this annual Armed Forces/A.R. affair a success by your participation. Keep the day of 18th May in mind. A certificate is also awarded for successful reception of the r.t.t.y. tests.

My thanks to the column's supporters mentioned above. Thanks chaps, keep the DX information going. Good hunting. 73, Al VK4SS.

SWL

Sub-Editor: D. GRANTLEY, WIA-L2022
P.O. Box 222, Penrith, N.S.W., 2750

In recent editions of a popular American Electronics magazine which, for obvious reasons will remain anonymous, there has been quite an amount of publicity about the listening to and QSLing of public utilities. These articles I should imagine, would provoke any budding listener to have a look see at these services, and maybe try to extract a card from them. One article tells you what you can hear, another tells you where you may obtain lists of the frequencies allocated to these services which include Interpol and American Service stations, yet the lists are in reality, classified information as far as the U.S. Government is concerned.

It is not my business to comment on the articles concerned, this is purely the concern of those who published the articles, however any material on this subject which is available to the Australian public over the counter is of interest to us here. Transmissions of this nature take place within Australia and no doubt much of the foreign domestic utilities can be heard here. Anybody who holds an ordinary broadcast receiver licence can listen to them, and naturally enough many do. But it is a far different story if that person communicates that data, or tries to use it for devious purposes. You will have the powers that be down on you like a ton of bricks, and this, to say the least, is uncomfortable and would take a lot of explaining.

Far more serious I should imagine, would be any attempt to forward a QSL to any of the local services, the fact that a QSL had been forwarded through the mails could possibly have unexpected and unpleasant reactions. If the American S.w.l's want to have fun and games in these matters, I suggest we leave it to them and keep out of any possible trouble ourselves.

DIVISIONAL NEWS

I am often asked why we rarely have news from the State S.w.l. Groups in this page. Let me hasten to point out that it is the responsibility of Group Secretaries or Publicity Officers to forward these notes on to me, and if they don't arrive, then we just can't do anything about them. I can only assume that Groups do not exist in VK4, 6, 7 and 9. Notes from VK2 and VK3 are printed if they are received and anything which I hear on the grapevine is included.

I don't know what goes on in VK3, but the VK2 S.w.l. Group Secretary promised me notes regularly every month and to date (six months later) I have received none, nor have I heard anything from them in the broadcast. As I have said repeatedly, this column is open for news from any S.w.l. or S.w.l. Group. The notes must be in here by 25th of the month, all letters are acknowledged, and any queries answered or referred to somebody who can. Whilst on the subject of this page, we shall have to suspend Harry Major's series for the time, but will wind it up when possible.

MAILBAG

Letters to hand from Chas Thorpe, Alan Raftery, Ernie Luff, Al VK4SS, Eric Trebilcock, L. Sharpley of VK4, Mac Hilliard, with George Allen and Mac on the phone, and an occasional meeting with Bob McIntosh. Plus of course the usual batch of tapes from overseas.

Firstly to Eric Trebilcock, who has most of his time taken up with his duties as VK3 Inward QSL Manager. However, he was not idle and reports the following loggings as being some of the more interesting ones. All are c.w. except for the 160 metre entries: 10 mx—VK8NO, ZL1HW, ZL1AXY. 20 mx—5N2AAF, VP7DX, VP9BK, 8P6BU, 5H3KJ, VK8UG. 40 mx—ZD5X, 4S7DA, MP4BEU, VE7HQ, G2PL, VE2YU. 80 mx—VE1TG, VE1ZZ, VK8NO, W6PKY, ZL4IF, VK7SM. 160 mx—VKs 3GX, 3WI, 3YQ, 3ACH, 3AEB and 3AYI. Inward QSLs were: DM4XL, EA1IV, G3GEW, JH1BZO, OE1DEW, OZ4KG, SP5PSL, UB5WJ, VE1TG, VK1GD, VK6KP, VQ8CBB, VQ9TC, W6ITY, and 9M8II. Eric's score: 301 heard, 297 confirmed.

Alan Raftery has been out of action due to studies for some time, but received QSLs from DL1MM, DL8DX and HP1CJ. All the best with those studies Alan.

Lew Sharpley comes to the page via Al VK4SS, and reports the following on 20 mx s.s.b. and a.m. DL7DI, YV1ST, OH2OI, CE3PR, 9M2DR, 9M2NF, XE1GP, VE3GBI, VE6SS, YV5AAO, VE4KE and many others. Lew is looking for the circuit of a UVSG Model JO8 (Sig. Gen.). Anybody able to help, his address is 45 Gordon Pde., Mt. Gravatt, Qld., 4112.

Mac Hilliard's Collins has been proving itself on the 10 mx band of late with excellent loggings of the Europeans. Whilst I have no call signs here, I know that he has hooked some OX calls.

Personally I have rarely seen 20 mx in better form, and the following have been logged on c.w.: VU2DIA (this chap is an easy logging for anybody whose c.w. is not too good for he has a very rough note and operates slowly), PY2EME, CP3GY, PA0LR, PZ1AH, UL7KAA, TG8RL, ZS6AG (1655z), UT5BX, ZS4I, VP9BK, ZC4BI, OZ3PO. On s.s.b. the going is rather hard here, as my current AR7 has no filtering system at all, but despite some splattering s.s.b. rigs from the southern States. I managed: CT1RT, EA4JL, KJ6BZ, VR1L, HC4BS, CE0AE, 6W8DY, EI8J, 9H1M, OX3JV, GW3BOC, 5W1AT, K0UXZ/KS6, TI2CEF (Box 4492, San Jose), VK9RJ, KC6YA, ZD8CC and many others. On the few occasions when I have glanced at 15 metres there have been mainly JAs, but last night (Mar. 23) the Europeans were booming in on c.w. at around 0800z, but a severe electrical storm made me throw the isolating switches to the shack. Tonight (24th) at the time of writing, 1000z, 21 Mc. is well and truly alive with signals from F, G, W, JA and locals pounding in. We are still having an electrical storm, but it hasn't dampened conditions.

As a matter of interest, at the time of writing, there is quite a bit of activity connected with a station signing GB3STD on 20 mx. This I take is the station I was advised of as being GB3SD, and is connected with the Radio Amateur Invalid and Bedfellows Club in the Sussex area of England. If any S.w.l. or Amateur has a card for this station I will gladly pass it on, as I am in contact every couple of weeks by air mail.

Ernie Luff is still bringing home the QSLs, and the following were added during the past month: VK2AGO, VK5NH, VE4SD, HV3SJ, YA5RG, G2BSW, DL3EA, KL7MF, VE6AO, VE6GN, VE3EOY, 3C3ACU, 3C3BNY, UB5UN, SM4CHG, SP9ZU, VE4XN, DL8DXI, GW3NJJ, VE8HF, OX4AA, VE3FDZ, 5Z4ERR, I0RB, VE3EVU, 4S7PB, and VK0CS. His score this month stands at 239 heard and 174 confirmed.

A letter to hand from Ray Schenk, of Springvale, Vic., who has recently acquired an AR7, and is looking for a manual for it. This has been obtained and I trust that we hear more from Ray.

DX NEWS

This comes direct from Bernard Hughes, of the I.S.W.L., and was airmailed from England a few days ago. CR3KD has been heard 2100z to 2359z on 21025 to 21050 c.w. QSL via W2CTN. HB0LL working into ZL at 0840z on 14272; QSL via WA4WAO. G3XEM/HZ will be active to the end of July; QSL to P. Booth, C/o. Airwork Services, Box 2142, Jeddah, Sth. Saudi Arabia. KC6CO active from West Carolines, whilst KC6JO is on East Carolines. PK1SH heard 1600z on 20 mx, PK8YAK 21310 at 1350z. UA0KIP 14005 c.w. 1500 to 1800z from Wrangel Is., would any S.w.l. or Amateur who hears or works this station please forward me the details of frequency and time heard here.

Please note VP8IE is about to go QRT, but at time of writing has been on 14245 at 0827z. Proposed DX-pedition to VS5RCS will not now be on top band, and 2nd operator will be 9M2XX. It is scheduled for May and June. Banana Is., 9L2SL, was a special field day station recently and has a special QSL card for the operation. VR3DY should be QRT at the end of March and all enquiries after that period to KH6GLU. The 4A1, 2 and 3 prefixes have been authorised by Mexico from Mar. 31 to Dec. 31, to date no reason has been given. Thanks Bernard for this information.

And that winds it up for this month. Let me have any news, particularly QSLs received, and out of the way loggings, plus anything of general interest. 73, Don L2022.

— . . . —

Publications Committee Reports

April meeting was held on the 8th, when correspondence was received from VK1VK, VK2AXS, VK3AMK, VK4ZIM, Secretary VK4 Division, and the Townsville Amateur Radio Club. Technical articles were received from VKs 1AU, 2AST, 2ZEZ, 3OM and 3ZWA.

— . . . —

STOP PRESS

PRICE OF "A.R."

For the last four years the Divisions have been paying 15 cents per copy. Over the last year costs have increased considerably, and a heavy loss incurred. The average cost per copy OVER THE LAST YEAR was 16½ cents a copy and for the last six months only, when fewer pages were printed, 18 cents a copy. Anticipated cost increases during 1968 will bring the cost to 18.9 cents basing on 28-page issues.

The Federal Convention was asked to increase the price to Divisions by five cents. This request was refused, but an extra two cents per copy was agreed to. As this increase does not cover costs, we have no choice but to reduce the size of the magazine, therefore the June issue will be the last to contain Divisional, S.w.l. or Club notes. V.h.f. notes will be restricted to brief reports of conditions and band openings. DX notes will be limited to half a page.

Federal notes will remain, but will be subject to strict editing according to space availability and advertising income.

Federal Council decided that a sub-committee should be appointed to enquire into all aspects of "A.R." Should the sub-committee ultimately find some way of reducing our costs, or find a way of increasing income, the above restrictions will be reviewed.

— . . . —

VICTORIAN NATIONAL PARKS AWARDS

The following Certificates have been awarded.

Worked From All Vic. National Parks
Certificate No. 1—Harold Hepburn, VK3AFQ.
No. 2—Peter Downie, VK3APD.

Worked All Vic. National Parks
Certificate No. 1—Les Jackson, VK3XM.
No. 2—Alf Chandler, VK3LC.
No. 3—Keith Roget, VK3YQ.
No. 4—Ivor Stafford, VK3XB.
No. 5—Mavis Stafford, VK3KS.
No. 6—Ed Manifold, VK3EM.

Special mention must be made on the outstanding work done by Harold and Peter in travelling to all the parks and giving so many contacts to those seeking this award. It is believed there has been further activity since they made their trip, but no details have come to hand. We would ask anybody planning operation from any of the parks to ensure advance publicity, either through "A.R." or on the broadcast from VK3WI.

Remember, this award is available to all licensed Amateurs from anywhere. It is NOT restricted to VK3s. Rules can be found on page 17 of "A.R." for December, 1967.

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the Publishers.

USE OF COMPONENTS

Editor "A.R.," Dear Sir,

I would like to have a few points cleared up, and if you could help, I would really appreciate it. I've sent a similar letter to this one to the P.M.G's Department in case they could help also.

Re "Amateur Radio," Nov. 1967, Federal Communication No. 4, page 3, Components. You state that "an Amateur can now use whatever combination of components he wishes." This is as long as he keeps within the power limits. I would imagine that a person with a transmitter capable of "over the limit' power would have to take care not to load up over the legal limit. My question is this: Why must an owner of a commercial transmitter such as the FLDX 2000 (Yaesu Musen) operate from the 440 volt tapping of the high tension transformer IF care is taken not to exceed the legal limit. See copy of the letter on page 21 of December 1967 "Amateur Radio". Limiting the drive to the linear would be one way of keeping within the power limit.

I wonder if the Drake T4X transmitter would have to be modified on the c.w. position since it is capable of 200 watts d.c. input on c.w.? Or would careful loading by the operator to limit the power input to less than 150 watts be enough? I wish to operate within the legal power limits as well as have my equipment meet the requirements of the P.M.G.

—Gene Nurkka, VK9GN.

[F.E. COMMENT: If FL2000 is operated on the 440v. tap, then the equipment operates within the power limit without having to be PROVED as within the limit, however if operated on h.v. tap it would place the onus on the Amateur to prove he was operating within the power limit, and his equipment would be subject to measurement by P.M.G. officers.]

TEN WORDS PER MINUTE

Editor "A.R.," Dear Sir,

As an OT brass pounder of some thirty years plus, may I comment on the amended P.M.G. regulation, which allows code to be reduced to ten words per minute for the obtaining of an experimental licence.

In most quarters this has been hailed as a good move, particularly among the ever growing number of "Z" boys, who now see only a "low hurdle" between them and full operation.

Will this reduction in our status codewise enhance our image overall? Eventually it may not. However, as so many Amateurs are so badly needed at this point of time, the decision in the broad sense seems justified, but in my personal view, there are one or two big reservations.

What will be the practical result of this change? More "Z" chaps will take their full ticket and more newcomers will scrape through the exam. at 10 w.p.m. All these in the main will be phone operators. I cannot see this amendment producing any significant change in the number of code operators.

If you believe that trying to maintain code proficiency among Amateurs is a "dead cause," then this letter is simply "flogging an expired horse," and there's no point in reading further. However, at the risk of sounding pedantic let me say again that those who should know, insist that code will be needed for a long time yet.

The perennial problem of creating quality AND quantity is not peculiar to A.R. It is the former that sets the level of our "image". I don't think anyone would argue with the reports coming from the States on the state of the art in the C.B., Novice and in some respects the General class ticket ranks. In operating techniques, quality of transmissions electronically, and just general overall social behaviour, the aforementioned would be inferior to the "advanced" ticket holders.

Of lesser import is the fact that OTs and others, particularly those who have been connected with communications and are good A1 operators, won't relish having their Amateur ticket relegated to third class.

No, assuming that Code is still considered a practical necessity, and a skill to be encouraged, I cannot see this relaxation to 10 w.p.m. helping it, in any material or practical way.

Only when two changes are made, will there be a significant improvement in the Quantity and Quality of Code Operation.

Firstly.—The newly acquired ticket-holder must be required to serve, say a 12-month period on some allotted section of the bands (possibly ten), and show a minimum number of logged QSOs on A1 Mode. Only the P.M.G. can create this situation—and such a break with past policies and traditions is long overdue. With full respect, it might be felt that the Department in this regard suffers from lack of interest, or imagination.

Secondly.—The W.I.A. needs a more intimate, professional and psychological approach to its Code tuition. True, the finance is not available to provide these full facilities, but, many would-be code operators are incorrectly conditioned at the beginning. This is the vital period, if one is to learn to receive code fluently. It is here that the beginners fail before they have commenced.

I must disagree in part with Federal Executive's comment, "That 10 w.p.m. is considered effective c.w. communication". For practical, general work, this is hardly so, and can be easily demonstrated. Work at this pace for an hour, say on 20 metres with the band open, one soon begins to feel like the driver doing 30 m.p.h. on a 70 m.p.h. freeway. The pace has considerably quickened these days.

True, 10 w.p.m. is an effective speed for working in very QRM, QRN and other adverse circumstances, but no novice could cope with these conditions at any speed.

Remember, much as we need more Amateurs, it is quality that sets our image.

—A. Shawsmith, VK4SS, I.A.R.J.S.

— . . . —

YRS

MAITLAND RADIO CLUB

A great honour has been bestowed upon the members of the Maitland Radio Club. In March it was announced that the Maitland Radio Club had been awarded the "Institution of Radio and Electronics Engineers" pennant for 1967. This award is made annually to the most efficient radio club in the State and dramatises the pride that the members have for their achievements during the first twelve months of operation, during which they gained 1 credit and 17 honours grades in the elementary examination held in October and December.

Congratulations have been received from as far away as South Australia, the most notable being from the Minister for Defence, Mr. Allen Fairhall (VK2KB). Activities planned for the next twelve months are the Y.R.S. Junior exams., followed by another Elementary exam. and the A.O.C.P. exam. which several members wish to contest.

Further proof of the club's rapid progress is in the leasing of a block of land from the Maitland City Council for $1 per year. The land in Maize Street, East Maitland, is in an excellent position and emphasises the faith that the City Leaders have in the prospects of the radio club. A building is available and will be moved to the site and prepared as a workshop as soon as possible. Plans are in hand for the erection of larger clubrooms. Although the completion of this project is very much in the future, members feel that the work and months of negotiations will result in a radio club that the City of Maitland will be proud to call its own.

On 25th Feb., 16 members attended the Gosford Field Day and extend their thanks to the organisers for presenting yet another successful rally. The first few months of the year have been busy ones for the club. The constitution has been formulated and accepted, and a QSL officer has been appointed to cater for the s.w.l. section of the club. This is in addition to the events enumerated above. The club membership now stands at 35 with the latest members being Rodney Sams, East Maitland; Rudy Meinsma, Maitland; Stephen Wallace, Tarro; Ken James, Telarah; Bart May, East Maitland; and Paul Sorenson, Lorn.

Trevor Whatson, who has been appointed as QSL officer, supports the club's appeal for short wave or dual wave receivers that could be used by members to listen to the broadcasts from VK2WI and VK2AWX, as well as other short wave bands. This would enable more members to take an active interest in the short wave listeners' section of the club.

Lectures will continue to be held in the Maitland Technical College on Friday evenings at 7 p.m. Further information about the club and its activities can be obtained from the Secretary by phoning 33-7286, or by writing to P.O. Box 54, East Maitland, N.S.W., 2323.

SOUTH AUSTRALIA Y.R.S. CONVENTION

On Monday, 29th Jan., a State Convention of the W.I.A. Y.R.S. was held in Elizabeth. This was the first such meeting of its kind in South Australia and the Elizabeth Amateur Radio Club acted as hosts for the occasion. The State Co-ordinator of Youth Radio, Rev. Bob Guthberlet, chaired the gathering and representatives from the W.I.A. were present including the Vice-President, Mr. Geoff Taylor.

Sixteen delegates representing seven Youth Radio Clubs and the W.I.A. attended the Convention, travelling from as far away as Port Pirie, Port Augusta and Peterborough. Other clubs represented were Kadina H.S., Nailsworth Boys Technical High School, Christie's Beach and Elizabeth.

Reports on Youth Radio Scheme activities and club programmes were presented by each club and points of common interest discussed. An interchange of ideas took place and such items as the various courses, the setting and marking of exams. for the various grades of certificates and other similar matters were discussed. Mr. Allen Dunn, VK5FD, was appointed State Secretary of the Y.R.S.

A further similar meeting has been arranged to be held in June following the National Convention to be held in Melbourne.

"ELEMENTARY RADIO COURSE"

This is a "book", printed on Gestetner, foolscap pages, which covers all the topics in the syllabus for the Elementary Certificate. Written in sections so as to facilitate use as correspondence course or as a fortnightly "handout" for an attendance class, the course includes practical projects with full details, theory notes, questions on those notes and the answers to these questions. The 48 fully packed close-spaced typed pages are in five sections. The last section's questions are in the form of a typical exam. paper for the certificate and there are no answers given for his.

The "E.R.C." is used by the Group Leaders of the Correspondence Section Y.R.C.S./V. to instruct members. Many club leaders around Australia are using it to instruct the members of their club. Some clubs hand out one copy to each member—at 50c a copy this is well worth it. (In Canberra there are four clubs which hand out a copy to each student—to date figures are available from only one of these as to the success of this system; the C.Y.R.C. reports **excellent**.) Correspondence instructors find that the course is excellent and the students' exam. papers reflect this.

Private study students who wish to use it as a text book will find it quite useful and together with a subscription to "Coryra" will be able to progress to a reasonable standard. Of course having an instructor will help, but if you could not afford the $5 membership of the Correspondence Section, then at least send for a single copy of the course (60c) and also send a subscription to "Coryra" ($1).

There are several forms in which one can purchase "E.R.C.":—

ERC1—Bulk, loose copies, sections separate, 50c.

ERC2—Bulk, stapled into books, in the page number order, which means the answer pages follow each section. 50c.

ERC3—Single, book form. 60c (stapled).

ERC4—Single, loose, sections and answer pages separate. 60c.

ERC5—As for 3, but in manilla folder, stapled well. 65c.

ERC6—As for 4, answer pages in sealed envelope. (Answer pages have other topics on the reverse side—thus do not leave in envelope for too long. 50c.)

ERC7—Bulk 5, 60c.

All the above prices include postage within Australia and Territories.

(Subscriptions to "Coryra" are really value for money if you are interested in radio/electronics articles, projects, etc. These may be sent along with an "E.R.C." order. "Coryra" orders will be pased on to the "Coryra" Secretary via our internal mail—saves you an extra stamp. To order one year's "Coryra" we only need $1 plus name and address. The "Coryra' subscription manager is Mr. J. A. Byrne, 112 Monaro Cres., Red Hill, A.C.T., 2603.)

— . . . —

QRP CLUB NEWS

DX member stations number approx. 260. U.S.A. can show a count of roughly around 3,000. This means the club is growing tremendously and many are showing out big in DX achievements. Moral: The antenna is more important than the power input. It is possible that Oceania QRP might attempt to throw a QRP contest on its own for world participation. Anyone with ideas on this might drop Barry VK5BS a line. Any worthwhile suggestion is always welcome.

FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

MEMBERSHIP RETURNS

	VK2 Feb.	VK3 Feb.	VK4 Feb.
Month ending			
Life	15	14	—
Full	899	834	348
Associate	447	259	130
Others	14	—	31
TOTAL	1375	1107	509
Previous Total	(1378)	(1101)	(503)

	VK5 Feb.	VK6 Feb.	VK7 Feb.
Month ending			
Life	4	6	7
Full	380	236	142
Associate	143	72	83
Others	23	—	—
TOTAL	550	314	232
Previous Total	(535)	(314)	(233)

Grand Total, All Grades: 4087 (4039).

Grand Total, Full Members: 2885 (2865).

Equals 51.5% of Licensees (51.5%).

LICENSED AMATEURS

(Figures for December, 1967)

	Full	Limited	Total
VK1	75	19	94
VK2	1323	406	1729
VK3	1127	542	1669
VK4	470	187	657
VK5	492	221	713
VK6	288	131	419
VK7	133	79	212
VK8	19	7	26
VK9	64	13	77
VK0	8	–	8
Totals	3999	1605	5604
Previous Totals	(3984)	(1587)	(5546)

I.T.U. CONFERENCE

The Maritime World Administrative Conference, which was convened by the I.T.U., ended on 3rd November. Amongst the main decisions of the Conference was the following:—

"The gradual introduction up to 1st January, 1978, of single sideband radio telephone technique in the high frequency bands between 4000 and 23000 Kc. allocated to the Maritime Mobile Service. The Conference also recommended that a world administration radio conference should be convened in 1973 to establish a new frequency allotment plan for sharing out the new single sideband channels to the coast stations."

This is the first recommendation that has been made for the holding of a World Administrative Conference but the recommendation is not automatically accepted by the I.T.U., nor does it preclude I.T.U. from deciding to hold such a World Conference **before** 1973, or deciding to hold Regional Conferences rather than a World Conference before or during 1973! However, the suggestion of 1973 should be noted by the Amateur Service, and W.I.A., and preparations should be made to meet that possibility while still being mindful of the prior possibilities of Regional or World I.T.U. Conferences.

— . . . —

FEDERAL QSL BUREAU

The QSL manager for VK0IA (Macquarie Island) turns out to be Greg Johnston, VK7ZKJ, who did such a good job in a similar capacity for Macquarie stations VK0MI and VK0CR. Greg's new QTH is 23 Cottesloe St., Lindisfarne, Tas., 7015. My para. in March "A.R." seeking the identity of the QSL manager for VK0IA brought forth a heartwarming response in the shape of offers to act as QSL manager, from Bert Behenna, VK5BB, and from VK6IZ. Thanks for the offers chaps.

Later news from the Eldo Tracking Station at Gove, N.T., now indicates that VK8UG is unlikely to be heard on the h.f. bands on any mode for some time, because Tubby Vale, VK8NO (VK5NO), who kept VK8UG very active, returned to Adelaide at the end of March. VK8GU preceded Tubby south a few days earlier. Only Amateur presently on the site is VK8ZBA. Sue Ward will attend to all QSLs for VK8UG. Tubby hopes to get back to Gawler but will enjoy two months' leave before settling down. It is quite possible Eastern stations may receive a visit from Tubby during this period.

Any information on disposal of QSLs for VK9RJ, W. J. Wirth, Nauru, would be appreciated. Have written him, but mail services to Nauru are slow and irregular. Anyone contacting him could perhaps obtain the information.

Amateurs throughout the world are invited to participate in the contest for the Centenary of the French Physical Engineer Doctor Gustave Ferrie, the father of useful transmission of radio—before 1900—and became general of the French military radio system in 1919. Gustave Ferrie is the first "Membre d'Honneur" of the R.E.F.

Date: C.w. and Phone, 25th May, 1201 GMT, to 26th 1800 GMT.

Contacts: All QSOs are valuable on all Amateur bands (3.5 to 435 Mc.). A contact with the same station can be repeated on the same band with one other mode of transmission. Fifteen minutes minimum must elapse between these two QSOs. In the meantime, the station can QSO other stations.

Calling: CQ Test Ferrie.

Exchange: RS or RST and number of the QSO (first QSO, 001).

Points: (a) for each QSO, 1 point; (b) for each band worked, 10 points; (c) for each mode of transmission on each band, 10 points.

Score: (a) plus (b) plus (c).

Logs must contain: Date, time GMT, bands, exchanges and each QSO which gives extra points must be underlined.

Each participant will receive a Commemorative Card. The first of each country will receive an award. Logs must be sent, before 1st July, to: R.E.F., B.P. 42-01, Paris R.P., France.

The Venice Section of the A.R.I. inform you that on the occasion of the St. Mark Day, Protector of the City, each contact effected on this day-time with stations of the Venice Province will count double value for the Serenissima Award. The Serenissima Award entails contacting five stations in the Venice Province of the A.R.I. after 1st Jan., 1963. Applications with QSLs and 10 I.R.C. to the Awards Manager, I1VAD, P.O. Box 181, Venice, Italy.

Members of the YL International Sidebanders are reminded of the QSO Party, 17th May to 20th May inclusive. A novel presentation is being arranged for their First Lady to be presented at the second Convention in New Orleans, L.A., from 31st May to 2nd June. DX members who would like to participate in this novel matter should contact Alf VK3LC at 1536 High St., Glen Iris, Vic., 3146, or to Jessie WA6OET.

—Ray Jones, VK3RJ, Manager.

— . . . —

FEDERAL AWARDS

The following are the awards issued by the W.I.A. through the Federal Awards Manager:

Australian D.X.C.C.
V.H.F.C.C. (6 mx and 2 mx).
W.A.S. (V.h.f.)
WA-VK-CA Award (Overseas stations only).

There appears to be some confusion regarding overseas awards, especially the A.R.R.L. D.X.C.C. and W.A.S. These can only be issued directly from the A.R.R.L. and QSLs MUST be sent direct to the A.R.R.L. headquarters when application is made for the award. The W.I.A. cannot handle applications for these awards, or certify check lists, etc.

The W.A.C. (Worked All Continents award) is issued by the I.A.R.U. and applications can only be made through the W.I.A. as only Amateurs belonging to a Radio Society affiliated with the I.A.R.U. are eligible for this award. To obtain this award the applicant must be able to prove two-way contact with a station in each of the recognised continental areas: North America, South America, Europe, Asia, Afric and Oceania. Certificates are issued for Phone and C.w. and stickers are given where two-way s.s.b. is proved. Applications should be forwarded to the Federal Awards Manager with a check list accompanying the QSLs. The check list must show normal award application details of time, date, station worked, band, RST, sent/rcvd., etc. Cards will be checked and then returned to the applicant. Please enclose sufficient postage to cover cost of returning the cards plus forwarding of the application to the I.A.R.U. headquarters in the U.S.A.

"CQ" Magazine Awards: The main award issued by "CQ" is the W.A.Z. (Worked All Zones). To obtain this award the applicant must have QSLs to prove two-way contact with a station in each of the 40 zones of the world as defined by "CQ". Zone maps and application forms are available from the DX Editor of "CQ" by sending a s.a.e. and one I.R.C. to: DX Editor, P.O. Box 205, Winter Haven, Florida, 33881, U.S.A.

Cards need not be sent overseas and will be checked by the Federal Awards Manager W.I.A. providing the following rules are observed. (1) Applicant files a completed application form with QSLs. (2) Applicant includes sufficient postage to cover cost of return of QSLs and forwarding of application to the U.S.A. (3) Applicant includes eight I.R.C's to cover issue of certificates. (This is the charge made by "CQ" Magazine.)

At present the awards listed above are the only ones being handled by the Federal Awards Manager, however negotiations are under way with various Societies issuing awards and when any other applications can be checked locally Amateurs will be advised through this column. It is realised that the present situation of having to send cards overseas is not desirable and every effort is being made to arrange for local checking where possible.

—Geoff Wilson, VK3AMK.

— . . . —

SILENT KEYS

It is with deep regret that we record the passing of the following Amateurs:

VK2BG—Bruce Glassop.
VK2GQ—Ted Barlow.
VK2ZLR—Dick Rutherford.
VK3HY—H. L. Andrews.

NEW SOUTH WALES

MARCH MONTHLY MEETING

An excellent attendance of some 80 members was present at the Wireless Institute Centre on Friday, 22nd, for the Monthly and Annual General Meetings. The first meeting was opened by President-Chairman Keith Finney, VK2KJ. The minutes of the Feb. meeting were read and after correction of a minor error were received in order. Applications for membership from 22 persons were presented to the meeting. Visitors included VK4ZDD, the VK4 Y.R.S. Supervisor, VK2ZFO and VK2BMK.

The Chairman called for nominations for the Advisory Committee. The existing committee, plus one other member were nominated so that the requisite names will now be forwarded to the P.M.G. for their selection of the three-man committee.

ANNUAL GENERAL MEETING

Immediately following the adjournment of the monthly meeting the Annual General Meeting was opened. The minutes of the A.G.M. of last year were read and accepted on motion. Following on, the Chairman, Keith Finney, advised that due to re-organisation of secretarial services, the Auditor's report was not yet ready. However, a preliminary balance sheet had been prepared and was read to the meeting by Councillor Dave Jeans, VK2BSJ. At the conclusion of this reading of the balance sheet, Dave answered some queries on various entries, and both Dave and Keith explained some of the items in detail, especially the disposal of the Radio Equipment Store.

The Y.R.S. Annual Report was then read out by Dave VK2BSJ, and on conclusion a short commentary on the Division's policy on Y.R.S. was given by Keith, and again some discussion ensured on the Y.R.S.

OBITUARY

TED BARLOW, VK2GQ

Ted Barlow was very well known for his QSOs on 7 Mc., both to the VK2 and VK3 Amateurs. As a young man, Ted saw service in the First War as a pilot where he was O.C. of Fred 2PF. He was wounded in that event, but he went on to join the Commonwealth Electoral Service where he was both very well known and respected.

Several Amateurs still have QSL cards of the 1924 era showing that Ted's Amateur days really started from the beginning. Ted is credited with several firsts in receiving and transmission and ranks among the pioneers of Amateur Radio.

Resident in Tamworth for some time, Ted again went to war in World War II., spending some time at Victoria Barracks, Sydney. After the war, Ted resumed his position in the Commonwealth Service where he again added many friends to an already long list.

Ted retired seven years ago and although he could use the new s.s.b. system, he preferred to stay on a.m. on 7 Mc. where his cheery signal on 7060 could be heard in daily contact with his close friend, VK2EW, who worked him mobile daily on the way to work.

Ted, who lived at Leichhardt with XYL Marjorie, journeyed to the Gold Coast for a holiday, however the holiday was to be cut short when Ted was admitted to the Southport Hospital suffering from a heart attack. Amateurs in Queensland closely followed his progress, but on Saturday afternoon, 23rd March, Ted passed away.

Bill VK4WS, who lives at Southport, assisted Ted's widow and son with arrangements and Bill and XYL Hazel took Ted's XYL into their hearts and home. No funeral notice appeared in Brisbane papers, however Stan VK4SA arranged for a small group of VK4s to attend the funeral, comprising of Bill VK4WS, Harold VK4HB and Stan VK4SA.

The Service was conducted by Rev. Doug Laver, of St. Barnabus, C. of E., at Sunnybrook, who turned out to be VK4ZDL, and who impressed those present when he said, "I think the call sign VK2GQ is as familiar in VK4 as is VK4GG and I take as my text a verse from 2 Cor: Ch. 4, 'Seek ye not those things . . .' Ted Barlow was a Radio Amateur and he worked with electrons—things which are not seen but which, nevertheless, do quite a lot of good work. Ted did a lot of good work which was not always seen and which he did without expectation of reward except the satisfaction of a job well done."

Ted's shack was always kept so neat and tidy and was a perfect example to us all of how to be an Amateur and how to keep a station.

On behalf of his many Amateur friends, both in N.S.W. and Queensland, and the President of the VK4 Division, VK4XJ, deepest sympathy is extended to his wife and family.

FRANK STOBBS, VK2 ASSOCIATE

Edward Francis Stobbs, known to all as Frank, could well have been described as the associate member we all knew. In his seventeen years of association with the Hunter Branch of the Institute, he seldom missed a meeting and he never failed to volunteer for any job that needed doing. In fact, his whole life was one of help to his fellows.

Frank served with distinction in the Second Fourth Australian Field Ambulance during most of the Pacific conflict and disregarded his own health to help those wounded and in need of assistance. After the war, he worked in industry and commerce in Newcastle until ill health forced his retirement as a T.P.I. ex-serviceman. But despite handicaps, Frank was there as usual, collecting the Field Day fees, working in the club store, instructing the young fry in ambulance duties, and leaving his mark everywhere in his neat and thorough attention to all that he did.

Frank Stobbs died suddenly on 28th March from a heart attack. He is survived by his courageous wife Gwen and his two children Janene and Frank. During his 62 years, Frank Stobbs did much to help the Amateur Service. We will not forget him.

After closing discussion on the above, the Annual Report of W.I.C.E.N. was read by Group Chairman, Peter VK2AXJ. The report in bulk covered exercises, and during discussion on W.I.C.E.N. and its function, a brief report revealed plans to link the Newcastle Net into the Sydney, Blue Mountains, Orange, and Macquarie networks. Peter also advised that a full descriptive article on the Communications Centre at Atcheson St. was to be prepared for "A.R." and the Bulletin, and was in the hands of Brian VK2ZQX. The article would answer most questions on the Centre.

President Keith then presented his report of the Council's activity for the year. Many questions were answered and in so doing Keith really added to the published report in the Bulletin. Considerable discussion centred on two topics—the balance sheet and the Radio Equipment Store. On the first subject, Keith endeavoured to arrive at simple explanations for the sheet but was hampered, as the full Auditor's Report was not yet ready. On the second subject, Keith advised that the Radio Equipment Store was no longer run by the Division, but by an outside organisation which had tendered for the lease of the Store.

Included in the report was discussion on Dural and Atcheson St., their value, future and possible destiny and an assurance that neither would be sold, or any major decisions made without the approval of members.

In respect of the election of the incoming Council, Keith expressed disappointment at receiving only five nominations, which included four of the existing Council and Ross 2ZRQ. In view of the position, the five nominees were declared elected. They are Keith 2KJ, Peter 2AXJ, Chic 2ALB, George 2AGO, Ross 2ZRQ. Keith went on to call for volunteers for Council and four members, Paul 2ZPG, Bob 2ZLX, Kevin 2ANY and Chris 2ZDD, obliged.

At a Council meeting held the following Friday, Keith 2KJ was elected President, Peter 2AXJ was elected as Senior Vice-President, Ross 2ZRQ was elected as Junior Vice-President, and George 2AGO as Treasurer. Chic 2ALB was elected as Buildings Officer. The remaining two Councillors were Don 2GN (Communications Officer) and Chris 2ZDD. It was also decided to appoint the remaining three —Paul 2ZPG, Bob 2ZLX and Kevin 2ANY—to a committee, the purpose of which was not released.

Returning to the meeting with the time at 11.20, Keith adjourned the Annual General Meeting until next month's general meeting to allow the Auditor's Report to be obtained.

The monthly meeting was now re-opened, and almost the entire time was occupied by the Federal Councillor receiving instruction, where necessary, on policy regarding the agenda items of the Federal Convention. At the late time of 11.50 the meeting was closed.

U.S. SERVICEMEN R. & R. LEAVE

As most members know, U.S. Servicemen come to Sydney for five days R. & R. leave. These boys have amongst their ranks a few Amateurs, and it would be in true Amateur tradition to extend the hospitality of your home or your time to show these boys around the town.

It would be indeed a great idea to be able to hand the mike over on a W contact and have the W veteran QSO with a home-town Amateur. If you would like to assist then contact the Secretary or the R. & R. Centre in town—they know about it and will gladly take you up on any offers.

MORSE TAPE SERVICE

Readers are reminded that this Division operates a Morse Tape Service which is designed to assist in passing the test in Morse Code. Included in the range is an excellent explanatory tape describing a proven way of appreciating the idea of the Code and how to start to learn to use it.

To obtain a copy of the tapes you send up 30 cents per tape to Ern Hodgkins, VK2EH, Mangrove Rd., Narara, N.S.W., 2251. Send a postal order or similar (**not 5c stamps**) to cover postage of the tape, and lastly return the tapes when you are finished with them in the box they came in. The service is available to all members in all States. Don't forget to advise the speed and number of tracks of your machine and remember that the exam. speed is now 10 w.p.m. only.

RADIO EQUIPMENT STORE
NEW MANAGEMENT

As from 1st March last the Radio Equipment Store was reconstituted as an entirely new business. The Store was let to an outside organisation on acceptance of their successful tender.

During the Annual General Meeting, in discussing the lease of the lower section of Atcheson St. premises as the Store, the President stated that the revenue from the lease would very considerably assist the Divisional funds and asked that members give the Store their custom. Plans include the release of a catalogue to members and others and extensive advertising in the Bulletin and advertising in "A.R." Members stand to gain both in a good Store service and an increase in Divisional income provided the necessary support is given.

73, Stan 2ZRD.

HUNTER BRANCH

As a result of the decisions reached at the Annual General Meeting, things have really been jumping in the Branch this month. The new committees formed to organise broadcasts and activities have met and some of their plans have gone into action. The result of this is that the new broadcast roster has been drawn up and with it, one of the real bogies of the system has been eliminated. This is the problem of relaying the programme from 80 to 2 mx. Under the new award, two broadcast scripts are prepared, one for h.f. and one for v.h.f. The committee then distributes news to each and the broadcast goes on irrespective of the quality of the link. This practice was really put to the test on 25th March, when conditions made reception on 80 almost impossible but the two metre boys carried on as usual.

Of course no revolutionary system can hope to succeed without hard working "behind the scenes" men and the real key man in this case is the broadcasts collator, Neville Threlfo. Nev. works hard to make sure that the whole show goes like clockwork and his crew of news readers are given the utmost assistance by him and the committee. The Branch prides itself on having the most consistently newsy broadcast in Australia—if you'll pardon the Irish expression—and it certainly looks like staying that way. If you have any news, by the way, why not send it along. The address is W.I.A. News Service, Box 86, Newcastle, 2300. And if you are a regular supplier of information for Australia's best Amateur broadcast then you will be kept supplied with stamped addressed envelopes for the transmission of printed notes to the Branch. Interested? Just drop a line to that address for your envelope supply.

Many called him the Hunter Branch's best known associate and they could well have been right since he seldom missed a meeting and he was always willing to lend a hand whenever help was needed, despite the fact that for the past several years he had been in poor health. The first most of us knew of Frank Stobb's death was when we read of it in the local paper—the end came very suddenly. The Branch extends to Mrs. Stobbs, Janene and Frank their sincere condolences.

Publicity wise the dice were all in our favour following the first of the new series of transmitter hunts held on Saturday, 23rd March. A picture of the 2ZCT/2ZWM crew appeared in the "Herald" and on the main news page too! Tony and Bill looked as if they meant business and apparently they did—but they couldn't find the tx. Len 2ZFD and John 2ZJG were the cunning foxes and they did quite a bit to confuse the boys, with the result that nobody made the finish. The new activity commenced from the Lions Park on the Charlestown Road just near the Dudley turn and there was a fair roll up of members and associates. All in all, they had a good time and it is planned to have many more of this type of event.

During the month, Dennis 2ZJZ left for work with the S.M.A. and when he did so he transferred ownership of quite a deal of exotic surplus gear to the Newcastle boys. Frank 2ZFX was seen staggering away with an AR7 by the way. As if he didn't have enough already. But I couldn't in all conscience tell you the price he's offered me for the MR20B! Seriously though, it is a good receiver as Brian 2ZKF will testify. Up in the coaly city, Chris 2PZ has himself a new mobile. Or should I say transportable. This baby elephant stands just a bit higher than both of us—one at a time of course—and is covered all over with wonderful looking knobs and controls. Chris is thinking of using some of it for s.s.b. Oh the power! And while all this good radio work is going on, there is Sherwood (2AJF to you) who is taking the big step soon. Not only is he ending his state of single bliss—and those who know him will agree with every word of that statement—he plans to hie himself off to a foreign land and far—well Canada anyway; so there you have it.

Henry 2ZGK didn't quite make the foreign land, but he did make so bold as to journey to Melbourne during a month of his vacation and he is still singing the praises of the chaps who gave him such a good time in VK3. After he had told Eric 3ZVR of his having left the g.d.o. behind where the grass is nice and green, aforementioned Eric invited him in and Henry had the full facilities of the workshop

As a result, he made it on both 2 and 6 mx and had one whale of a time while in the Southern City.

And not only does the v.h.f. band get all the credit for good time having. Bill 2XT has been joined by Bill 2ZL, who is also getting amongst them with the ducktalker. I still can't believe it's true! It will be interesting to see who comes up with a prize for the International Amateur Radio Club, C.P.R. Contest being staged during April. The contest seems to have attracted a good deal of interest among Amateurs and S.w.l's alike, so there may be some good scores. As for me, I had to resort to making a key from a pair of pliers recently, much to the surprise of my nearest colleague who made some comments on the key clicks. Oh, but the ingenuity of it all! I surely must take double points for that one.

If you are wondering what to do with yourself on the night of Friday, 3rd May, and if you would like to see the Morse key pliers, then please come along to the Branch meeting. It will be held in room 6 of the Clegg Building, Newcastle Technical College, Tighes Hill, and we commence the goings on at 8. Why not come along and surprise yourself and the rest of us too. Shall we see you? 73, 2AKX.

— • • • —

VICTORIA

The April meeting of the Division was devoted almost entirely to a talk by Mr. J. Wilkinson, of the P.M.G. Department. His subject was antennae, and to show how well he knows his subject, he continued until a few minutes before 11 o'clock. Even at this late hour, he still had much of the subject to cover and has agreed to return at a future date and take the matter further.

Mr. Wilkinson opened by saying he wished to handle his subject as a seminar, and although those present were a little slow in taking to the suggestion, their reluctance gradually faded and they entered into the discussion very freely. Many and varied were the questions asked and answered. At the conclusion of the evening, David Rankin moved the vote of thanks, and the enthusiasm with which he was supported, left no doubts about the success of the evening.

Apart from the reading of the minutes, admittance of new members and a very brief discussion on the Federal Convention, we only had time to welcome our visitors. We were delighted to welcome the Controller Radio Branch, Mr. C. Carroll to our meeting and hope to see him again at frequent intervals.

The evening really started with a bang, although quite unintentionally. The projector globe exploded, causing some slight disorganisation, but as the owner of said projector had the foresight to have a spare in his pocket, it was a simple matter of nominating a "volunteer" to make the replacement, before we got under way.

The May meeting is the Annual General Meeting, which will be followed by a White Elephant Night. Bring along some of your surplus gear and lots of money. That odd part you have been looking for just may show up.

In addition to previous lists, the following donations to I.T.U. Fund were received up to 1/4/68: Collections at general meetings, $11.75, at v.h.f. meetings $9.20; VK3ZCG, $3.00; VKs 3AUN, 3DG, 3IB, 3OL, 3XU, 3ZGF, each $2.00; VK0IA, $2.00; L3295, $1.25; Collection Y.R.S. meeting, $1.09; VKs 3ALG/T, 3ZNJ, Anon., each $1.00; VK3ZE, 85c; VK3ATB and Anon, each 20c. We are getting very close to our target and make a special plea. If you have not already sent your donation, do it now.

A reminder. Subscriptions are now due. At the time of writing, about 700 renewals have been completed. Remember, in May the circulation list for "A.R." is revised. If you are not financial, your name will be deleted from the list and you will miss copies. No good coming later and complaining if you cannot get the missed issues, as very few additional copies will be printed. Why not write out a cheque now, add a bit extra for the I.T.U. Fund, and mail it on the way to work tomorrow?

VICTORIAN DIVISION STATE CONVENTION
(As visited by Naomi)

Having had such an enjoyable time at the State Convention in 1967, I was easily persuaded by the OM to agree to make the trip to Paynesville again this year. After a most pleasant run down to Bairnsdale, where motel accommodation had been arranged for those attending the Convention, we spent the afternoon strolling around the town, and found much there to interest us. In spite of the long drought, the Mitchell River was beautiful to see, and we found that the hours passed all too quickly, for it was soon time to pretty up in readiness for the Dinner at the Paynesville Hotel. It was a great pleasure indeed to meet so many of those whom we had met on the previous occasion and also to become acquainted with many whom we were meeting for the first time.

It seemed a pity that the attendance this year was so small, only about thirty-four or so having made trip. However, I can assure you that those who were there thoroughly enjoyed themselves. The Dinner itself was very tasty and satisfying, and everybody seemed to do full justice to it.

One thing that struck me as being very pleasing was the number of young folk who had come to the gathering, young men who had brought along their XYLs to be shown off to the assemblage.

For the Sunday, we were taken for a picnic to Ocean Grange, the scene of a similar function last year. Boarding the motor boat "Seabird" at about 9.30 a.m., we were taken for a very delightful cruise of several miles round the lake, finally alighting at the picnic spot. The young folk (and some not so young) went across the dunes to the ocean where they made the most of the opportunity of a dip in the blue waters. The rest of the party lolled about on the grass for an hour or two till the return of the adventurers and then we all regaled ourselves with the beautiful picnic luncheon that had been prepared for us by the caterers. I am sure that everybody will agree when I say that this meal was most enjoyable, of course the outdoor setting adding zest to the appetite.

Meanwhile, it was most noticeable how the OMs gathered in small groups and chatted together, and although we XYLs were at times too far off to hear exactly what was being said, we could make guesses as to the topics and formed the opinion that mostly the subject discussed was "Girls", for we caught references to some "Rees Sisters", or some "Tram Sisters", while methods of making "Ann Tender" (apparently by "Osculation") seemed to be very interesting. On the other hand, some others seemed to be more interested in household economy, for I for one heard something about "Free Quinces", apparently growing either "high" or "low" on the trees.

Our return trip to Paynesville was again very enjoyable, and the consensus of opinion was that the whole day had been a most memorable one. Your scribe was very glad that she had taken her OM's advice and had gone with him to the 1968 Victorian State Convention, and hopes to be asked again next year.

EASTERN ZONE

By the time these notes are printed the Zone should have held their annual Convention near Mirboo North and trust all who attended enjoyed themselves and arrived back home safely and now ready to try and make this another interesting term of Zone activities. As being your outgoing President, I wish to thank you all for your help and co-operation and my best wishes to the new President, office-bearers and Zone members. Best of DX. 73, George VK3ZCG.

WESTERN ZONE

Most of the activity heard within the Zone has been on 144 megs. Contacts with Mt. Gambier and Adelaide have been regular from the West Wimmera area. Viewers in Rainbow are losing some of their entertainment. George 3ZEA has left for Melbourne. What about having a shot at those 10 w.p.m. George, so that you can talk to us again? Gavin 3AEJ is leaving for six months duty on Willis Island. He will have a VK4 call and will be on 80, 20 and 6 metres. Area of the island is 150 acres and population of three. Gavin is going to straighten out the weather forecasts. We are looking forward to Peter Solley putting Rainbow back on the air shortly. Perce 3PA is another to leave the Zone. All the best in your retirement, Perce.

Roy 3ZYG seems to be able to smell DX. Worked a VK4 recently during short opening on 6 mx. Roy and Bill 3ZAX working hard at c.w. Graham 5ZOF helps to keep the dust out of the rig of Tony 5ZAI. Some of the projects of this joint team include tape recorder, walkie-talkies and new 70-foot tower. They had an unwelcome visitor during the summer—a snake in the swimming pool. Jim 3ZMS has nice sideband signal on 2 mx. His new beam on 6 mx brings up local signals, so he is looking forward to DX openings. Gary 3ZOS has been doing some re-building, but still manages some 432 Mc. contacts with 5ZDR at Tantanoola, and 3ZER Geelong. Brian 3ZFS manages a few contacts when he should be doing home-work—or is it relaxation Brian? Roy 3AOS spending most of his spare time on 10 mx with good results.

Ron 3AIS from Wycheproof has been trying to get an AR7 going on 20. Hope you can find the missing link when you get that handbook Ron. Nhill Radio and Electronics Club (President Lyle 3ASA) now have their own rooms. We hope some of their members will soon swell our ranks. Herb 3NN, Bert 3EF, Bill 3AKW, Chas 3IB and Merv 3AFO are most regular on the hook-up. Come in some time and let us know what you have been doing. 73, Bob 3ARM.

— • • • —

QUEENSLAND

IPSWICH AND DISTRICT RADIO CLUB

The past month seems to have flown by and once again it is notes time. During the month we have had our President, Ron 4RG, absent for a couple of weeks while he attended the Civil Defence School at Mt. Macedon. The meeting was chaired by George 4ZLG and our Public Relations Officer took advantage of Ron's absence to ask for his annual grant of stamp petty cash. I am sure if Ron had known he would have flown home from VK3 to be at the meeting.

The A.O.C.P. classes are progressing very nicely under the direction of Ralph 4JZ, and I am pleased to say they have attracted a considerable number of new members who wish to enrol in our new classes. The way club membership is increasing the club house will need extending in the not too distant future.

The club station VK4IO has been operating on 2 metres quite regularly of late and a number of contacts have been made in Brisbane, Sandgate and the Gold Coast, and as a result of this increased 2 metre activity, a number of club certificates have been issued to stations who have contacted the club station and the necessary number of club members. The club certificate is very popular among v.h.f. Amateurs in our area and it is rather disappointing that we have not sent out very many certificates for the lower frequency bands.

The 2 metre station for club use was kindly loaned by Max 4ZMV and it is hoped that the club will soon have its own 2 metre station. While on the station gear, our three-band s.s.b. transceiver has developed a problem and has been returned to its maker, Jack 4SF, for running repairs; it will not be too long before 4IO is back on the "broadcast band" to use a common v.h.f'ers phrase.

Social activities of the club had a variation recently with a theatre party, attending a show in Brisbane one night recently, the main conversation at interval was concerning the recent breakthrough of JAs on 6 metres, also a very successful Hoy evening was held and club funds profited considerably from this evening. Our thanks must go to our caller, Eric Tomlinson, who seems to have had previous experience in this role.

After a considerable amount of discussion, it appears a new booklet will be soon issued to all club members. The book will contain the club's constitution, also a certificate of membership, and all are awaiting to see the finished product.

Dave 4HW has been having a lot of fun on 2 metres, seems he has a new beam rotator, namely Wayne 4ZN, who was up on the roof turning the beam to check it out in a recent QSO with 4IO. The club has a similar type rotator, only his name is Tom.

The VK4 State Convention will be held later this year, I believe, and we are hoping to find more members than Bundaberg this time so we can win the bottle of "White Lady".

A recent addition to 2 metres is George 4ZLG. He has a nice signal up here and has worked a number of stations. He may be increasing the beam height soon I believe, to get amongst the Toowoomba and Gold Coast boys. The club's pro, Bill L4001, now has his new 10 el. Yagi up on 2 metres and a new converter to go with it; seems he still does not hear enough and is at present checking out pre-amps. 73, Warren VK4GT.

CENTRAL QUEENSLAND BRANCH

To the undoubted astonishment of members of this Branch, the Publicity Officer has managed to compile another monthly report on activities of the Branch—reactions of members to these efforts will be awaited with keen interest by the writer!

The usual monthly meeting of the Branch was held in the clubroom on 15th March with a good attendance of members. Notable absentees were our President, Hal 4DO, who was on holidays in southern Queensland, and Past President, Frank 4FN, whose duties at broadcast tx (200 miles west of Rockhampton) precluded his attending.

One item of considerable interest to members was receipt of a generous offer from the Central Queensland Regional Development Bureau to provide attractively printed QSL cards free of cost to members. This concrete evidence of outside interest in Amateur Radio was received with appreciation, and members expressed their thanks for the recognition afforded to Amateur Radio operators in the area. Distribution of cards will be made in the near future.

Operation "clean-up" was launched by the working-bee against the prolific guinea-grass growth around the clubroom area. The heavy spraying with the "4ZFR special" poisoning fluid, after hard work with mattocks, etc., should ensure a few months respite—no fun, this type of thing?

H.f. activity around the area has been lessened somewhat by the absence of Hal 4DO—the prolific DX specialist—but Geoff 4FK has held the fort nobly.

Country members John 4NZ and Harry 4LE are often heard in the 40 mx early morning group hook-up. Old-timer Joe 4CL is still in hospital and would appreciate a visit from any of the local Amateurs if possible. There would appear to be a possible convert to 52 Mc. in the offing, as Eric 4EC was recently heard on that band in the throes of testing a transceiver device!

Regular monitoring of the V.h.f. Group activities during the month shows that the 6 mx gang are really keen—regular openings to far eastern climes have provided daily JA DX, and consistent operators Frank 4ZFR, Bob 4NG, Doug 4ZDK, Gordon 4ZGA and Lydnsay 4ZIM have been filling up the log books with a plethora of JA call signs. Congratulations also to 4ZFR for his contact with KR6UY recently—nice work; other KR6 calls have been heard but no contacts made. The old maestro, Bob 4NG, has been carefully listening for the extra-rare" DX, but reports no luck to date. The powerful signal of Lance 4ZAZ has been missing of late due to his absence in southern areas on business trips.

Don 4ZFB—our man in Biloela—has been working into JA consistently and tells me he now has made the 6 mx antenna system fully rotatable—looks like the DX contacts are due for a sharp upward tally! There is some talk also about a hi-power rig in the near future!

There appears to be an up-surge in building projects in the v.h.f. gang, of late. One hears that 4ZGA is working hard on a new 70w. rig; Charlie 4ZBG also planning a new tx; Frank 4ZFR is in the semi-throes of planning a super control panel to operate his complex of tx's, tx's, tape recorders, etc. Geoff 4FK at long last has put the 25w. device into operation on 6 mx—he's been threatening this for a long while, but now it's a fact. Doug 4ZDK dividing his spare time between Amateur Radio and extensions to his QTH. Lyle 4ZLD has been working on several projects—never seems to rest, this chap!

An item to mention, also, is the interest in Morse practice by the V.h.f. Group; through the good offices of 4FK, we are provided with regular Morse practice sessions and several Z calls hope to attack the May exam. Have not heard mention of any visiting Amateurs through the city of late, except 4LU of Townsville, who called up on 53032 and met some of the gang. We hope to see him on return from his southern holiday.

Late News: Short opening to VK3 and VK5 on Sunday, 31st March, produced some 5 x 9 sigs and the locals renewed acquaintance with 5ZDX, 5ZMW, 5ZUL, 5ZK, 3ZYG, and 5ZQB. Nice to meet them again, and we are looking forward to the southern DX season to carry on the QSOs.

In closing, may we again remind any visiting VK gents, please call CQ on 53032 or use the 600 ohm system—as mentioned in the April notes. We like to meet fellow Amateurs and make them welcome. 73, Lydnsay 4ZIM.

BUNDABERG AMATEUR RADIO CLUB

The Annual General Meeting was held on 7th Feb. and was very successful with a large attendance of members. The retiring President, Lea VK4FX, outlined the activities of the club during 1967. It was a most successful year and Lea thanked all those who helped during the year.

The election of officers was as follows: Patron, Mr. D. G. Rattray; President, Joscelyn VK4JJ; Secretary, Don VK4NK; Treasurer, Geoff VK-4GI; A.O.C.P. Class Instructor, Roy VK4ZWR; Morse Instructor, Geoff VK4GI; Dave VK4DJ. All other official positions were filled by various club members.

The Bundaberg and Ipswich Radio Clubs held a combined field day at Borumba Dam on the week-end of 24th-25th Feb. Members were loud in their praises of both the facilities and the scenery and the many courtesies extended to us by the officer-in-charge, Mr. Cliff Holloway, and his staff.

There was a total attendance of 26, being made up of Amateurs, A.O.C.P. class members and XYLs. Fox hunting, swimming and Scuba diving were among the activities enjoyed. The Ipswich group gave a very interesting display of colour films and slides of the various club activities.

On Sunday morning, Geoff VK4GI set up his transistorised s.s.b. rig and participated in the VK4 hook-up and made many other contacts on 40 and 20 mx. Bob VK4UD set up a 6 mx station on the Water Tower Hill at Imbel and worked quite a few stations. 6 mx mobile activity was very high throughout the week-end. Several people including Bill Jehn from Ipswich and yours truly were kept away due to sickness and other misfortunes. General comment was that " we must do it again some time".

The 6 mx band is wide open to JA land from Bundy at the moment and yours truly worked 35 JAs and JHs in a couple of hours, mostly 5/9 signals.

The A.O.C.P. and Y.R.S. classes are once again in full swing. The Y.R.S. class has a membership of over 30 and the accommodation situation is a bit embarrassing to say the least. Club President, Joscelyn VK4JJ, presented 7 certificates to successful candidates at last year's exams.

The March meeting was very well attended. At this meeting we accepted the Division's invitation to stage the Queensland Convention again. At the moment the club and the Central Queensland Branch are in the process of organising a camping week-end at Tannum Sands, which the club members are looking forward to with anticipation. 73, Rusty VK4JM.

TOWNSVILLE AND DISTRICT

At the last monthly meeting of the local club, the opportunity was taken to visit Channel 7 at the top of Mount Stuart. Twenty-four made the trip and thoroughly enjoyed all that they saw. Even the female office staff! One must say that the view from the windows of the t.v. studio that overlooks our fair city has to be seen to be appreciated.

The outing was such a success that arrangements were made that for the April meeting a visit was arranged to D.C.A. So once again the newcomers will enjoy their meeting nights. It is also proposed that people from all walks of life be invited to give talks of interest to everyone. Even have a couple of University Professors in view.

Bert 4LB is now on the air with a new Galaxy after being modified so that the regulations will not be broken in its output. Seems to be making a welter of working new countries for DXCC. Merv 4DV has weekly QSOs with the Townsville boys on 3.5 Mc. Short skip seems to be the order of the day as every Sunday I can hear 4LZ in Proserpine.

The Z boys are still getting through to Japan on 54 Mc. Some are trying for the Morse at the next exam. The photo of the Ipswich Radio Club in a recent "A.R." has the boys locally on their toes to get their own under way after approval for the land comes through.

As the Tourist Season is about to commence, you mobile boys visiting the best part of Australia remember to call in and meet the locals either at their shacks or at the corner house, when you will be assured of a right royal welcome—the drought being broken. 73, Bob VK4RW.

— • • • —

SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held to a capacity gathering of members and visitors, so much so, that extra seating had to be provided to take care of the overflow. The new President, Tom 5TL, opened the meeting on time and with a few well chosen words introduced himself as the new President, at the same time explaining that he and the members of his Council would do all in their power to advance the Division, but very little could be done without the help of the members and their general co-operation. He recommended that members read the opening article in the Journal for March, written by Arn 5XV, and mark, learn and inwardly digest.

The Secretary, Al 5EK, then informed members that it was expected that supplies of the R.S.G.B. Handbook would soon be available.

The Federal Councillor, Geoff 5TY, had little or nothing to announce on Federal matters, and after a little discussion on matters purely domestic, the meeting was given over to the QSL Officer, George 5RX, for the distribution of QSL cards.

The meeting was then called to order and the highlight of the evening was announced, to wit, a jumble sale—buy and sell to you—and the auctioneer introduced with a flare of trumpets, which all fell flat because the said auctioneer was out of the room. Anyway, reintroduction followed, and to tremendous applause, that debonair, muscular, modest and unassuming example of Amateur Radio stepped up to the rostrum prepared to squeeze the last cent from his unwilling audience. Nothing much more can be said, except that everybody seemed to enjoy themselves no end, especially the auctioneer, and the night closed at the witching hour of 10.45 p.m., with all present more than satisfied with the entertainment provided. What's that? Who was the auctioneer? My modesty does not permit. I blush so easily, shall we keep it a secret? Just try and guess!!!

Was talking to Pete 5FM prior to the meeting and he was saying that VK5 signals are becoming scarcer than hens teeth, and deplored the inactivity on the bands these days. I definitely agree with him, there was a time when I could get all my news by listening on the bands, but these days I have to rely on the reports from a couple of trusty agents discreetly planted in the right places.

Les 5NJ recently thought he would work 5MY because he had never heard this station before and felt that he needed encouragement. He nearly had a couple of fits in push pull parallel to find out that 5MY was none other than that doyen of the c.w. gang, our Treasurer Harry, on the air to get some experience with telephony in preparation for working 5WI. Harry was cut to the quick.

Alan 5ZX was an old-timer noticed at the meeting, and I was pleased to have a chat with him, although a certain coldness descended

on the conversation when he proudly told me that he was now on s.s.b. He did not realise just how he was turning the knife in the wound! His harmonic, Chris., had a shot at the Limited recently and is in the process of keeping his fingers crossed. Hope you make it Chris.

John 5KX was proudly boasting as to how he had three contacts mobile the other morning on the way to work. Apparently he is another of the once very active members who has been having a lean time.

Max 5OS was sighted recently down at the Brighton Yacht Squadron, and from all appearances had squibbed putting the yacht into the water because of the prevailing roughness. Tut-tut and a couple of toots, there is no such thing as too rough to a sailor of your reported calibre Max!

Rex 5UF heard mobile in Fullarton on 7 Mc. recently and with a signal and a half at that. It is remarkable at times just to what strength these mobile signals build up to and I find it hard to realise that they are mobile and not at their home QTH.

Talking of mobiles, Les 5NJ will be bound for the Snowy Mountains in September and will definitely be mobile all the way.

Jack 5JX, he of disposal fame, heard recently blowing his bags concerning the amount of r.f. floating around his shack, although when pressed he admitted he would have liked to see more of it up in his G5RV antenna where it would do more good. Judging by the strength of his signal to me, he has little to complain about.

I heard from a usually reliable source recently that my favourite banker, Keith 5KH, was on the verge of retiring from the banking business and joining the ranks of the idle rich. What it is to be in the upper strata!

Harry 5MY back from his recent trip across the water and looking fit and well. One of my agents, planted in Council, tipped me off that Harry might soon be running 5WI. Harry with a microphone!! I refuse to believe it!

Andy 4AT was putting a good signal down to VK5 recently and was heard in contact with a round table of the locals. VK4s don't usually put in such a good signal on 7 Mc. to me at my QTH, but this one was exceptional.

Allen 5FD, the newly appointed Y.R.S. State Secretary from Elizabeth, was another unexpected signal heard on 7 Mc. recently. When heard was in QSO with Frank 5MZ, he was talking about giving a new antenna a try-out.

The VK5 Council for 1968-69 is now T. Laidler, 5TL, as President; A. Allan, 5UL, and G. Taylor, 5TY, as Vice-Presidents; A. Rechner, 5EK, as Secretary; H. Roberts, 5MY, as Treasurer; T. Slater, 5ZIS, as Minute Secretary; and R. Dow, 5KF, as Publications Officer. Only a couple of changes from that of last year, but all in all a solid looking Council.

Tom 5TL is no stranger to Amateur Radio, having been licensed in 1937, and active on all available bands since then. By the nature of his vocation, the postal services, he has been heard from such towns as Ceduna, Largs Bay, Alice Springs, Salisbury and twice from Renmark, and it is only since his transfer to Glenelg in the past few years that he has been able to take an administrative part in the VK5 Council. Even whilst away in the country areas he was always willing to assist the Division in any way possible, and his Morse code transmissions for the benefit of the learner will be remembered. He is assured of the co-operation and loyalty of all VK5 members.

I notice that a regular schedule for Youth Radio Clubs has now been set up and all clubs are invited to take part on 3625 Kc. on the first Friday of every month at 2000 hours (S.A. time). This is all to the good, and will certainly help to bring the clubs closer together.

Understand that Lance 5XL recently spent a couple of weeks in hospital, but everything must be okay now because he was heard on the air again advocating that the powers-that-be should arrange for a noise-free area and a good receiver for 5WI. The receiver was a good angle, but the noise-free area in the "big smoke" is a horse of another colour. If anybody ever finds such a location, I suggest that they keep it to themselves, if they don't want to be bowled over in the rush.

Phil 5NN is finding himself a man who is running out of available nights. He could not make the W.I.C.E.N. meeting because of other arrangements, and he quite often bobs in and out of the general meetings because of other commitments.

The latest craze in VK5 seems to be the mounting of little white balls on the tips of car radio antennae, one or two even have neon lights to draw further attention. In view of the "dim" picture taken by the local gendarmes on this practice, think twice before you light up the mobile antenna.

Vern 5VB, "The Admiral" to you, admits to over the years acquiring all sorts of items (ex disposals) which seems to have aroused the enthusiasm of Neil 5WN. Vern was heard to express regret at the loss of certain capacitors in the unfortunate fire at his QTH recently.

Heard John 5JQ offering to get out the flags, stand on top of his shack and have a contact with Vern 5VB. Probably not a bad idea now that the code speed is down to ten words per minute, although going back to my early Scouting days, perhaps it would not be such a good idea after all.

Now that Tom 5TL has taken over the Presidency of the Division, the job of Publications Officer falls vacant, and my reliable source of information right in the middle of Council tips me off that Ross 5KF will be taking over the job. At last one will be able to walk into the meeting without having a book, a magazine, or a W.I.A. transfer rudely thrust under one's nose with a persuasive line of sales talk that would sell fridges to the Eskimo population. Or will one?

Ron 5KS, the programme organiser, is another one tipped to give the game away for the coming year. If this is true, we will be the losers, because the level of entertainment and instruction over the past two years has been at an all-time high.

I notice in the DX Notes of the 5WI broadcast that a SM Amateur claims to have stayed at the QTH of the late Doc 5MD during the year of 1953. It was not stated whether the visit was private or in the course of duty!! For the information of the uninformed—and there would not be many—Doc. was the Keeper of the Adelaide Gaol and operated his rig from that QTH, with one or two quite embarrassing mix-ups in the QSL business!

Included in my mail for this month was a paragraph listed as appearing in the magazine "Life" under the heading of "Liquid Crystals". I quote, "The blackened transistor coated with liquid crystals, which exhibit colour at a specific temperature, indicate, by lack of colour, it is faulty. Other parts show they are functioning normally." Well, did you ever?

Last February meeting night, two or three members who are keen S.w.l's approached me and had a bit of a grizzle on just how much the Division does not do for them, with particular emphasis on the S.w.l. listings being left out of the last Call Sign Book. During the next week I also had a couple of letters along the same lines, and in view of the fact that news was at a premium that month, I decided to keep the VK5 notes up to their usual short length by writing a paragraph along these lines. The reaction to the paragraph from my old buddy-buddy, no other than Ye Ed, was quite unexpected, and within the week I received a stiff letter on cardboard, which opened up with, and I quote, "'Just to make my life complete, you have to join the party". Then followed the usual batch of compliments that I have come to expect from him, none of which I will repeat, due to my well known sense of modesty, plus the fact that I know he was only joking—I think!

Anyway, whilst I don't expect my paragraph to see the light of day in the magazine, at least I now know just what the background is to the non-printing of the S.w.l. listings in the Call Book—a simple matter of finance, to wit, the inclusion of the S.w.l's would have added 10 cents to the cover price of the Call Book, which at 75 cents per copy, has reached its ceiling price already, plus the fact that the Call Book has an official title which is self-explanatory, and does not make any provision for the S.w.l.

The above-mentioned letter also carried quite a lot of information on the S.w.l. position, all of which was unknown to me, and if any S.w.l. is still interested enough to grab my ear at any meeting in the future, I will be only too willing and able to make the necessary explanations to our mutual satisfaction.

Heard Harold 7MZ in contact with Frank 5MZ on 7 Mc. the other day, and was wondering how many would remember Harold as 5FZ originally. In case you are one of those who have forgotten and are too tired to look up the present Call Book, his name is Harold Hancock—any relation Darcy 5RJ?

Colin 5CY, who was portable at Quorn, was putting in a remarkably good signal to me on 7 Mc. about 5.30 p.m. recently. All the more so when I heard him say that his antenna would not have been more than 15 feet at the high end. Understand he was on his way outback 150 miles to a birthday party.

Perce 5PH was another station to be heard here after many years absence from my receiver. Perce used to be at Willaston some 12 years or so ago, but shifted down to the city to give his two boys and a girl better opportunities in their studies. One is now a doctor at Port Pirie, the other a doctor at Daws Road Hospital, to say nothing of the daughter well on her way in science studies, so it is no wonder that Perce is well satisfied with his decision to move to the city—and just a teeny weeny bit proud of them Perce?

Gilbert 5GX back from his vacation at Victor Harbour and tells me that there are now quite a number of the gang at this location these days. One time when one thought of Victor Harbour, one thought only of Pat 5KM, but apparently this is a thing of the past.

Remember the story of the Prince Charming who searched the land to find the dainty foot which would fit the glass slipper that he found at midnight? Well, whilst I am not exactly a Prince Charming, not quite anyway, I am in the process of searching the land to find the owner of the voice that I heard on 7 Mc. the other early evening singing "Happy birthday to you," etc., etc. and when I find the owner I am going to slap a contract for untold hundreds of dollars in his hand, because with a voice like that he would put Mario Lanza to shame. What timbre, what tone, what a resonance—and what a cheek!

I cannot miss the opportunity of letting you know just how complimentary the editor of this magazine can be to me. He concluded the aforementioned stiff letter on cardboard to me with the cryptical, and I quote, "My regards to your long-suffering XYL." I quizzed her on this remark, and she said, and again I quote, "he is only complimenting you, after being married to you for 40 years or more, all suffering has ceased." Attagirl—that's telling him—or is it?

73 de 5PS—PanSy to you.

— . . . —

WESTERN AUSTRALIA

Now is the time for all good men to come to the aid of—by golly force of habit almost made me complete that good old standby of all typewriter mechanics, calling all and sundry to rally to the cause of their particular party.

What I really started out to say was that owing to lack of nominations for Council, it will be necessary to cast a searching eye in every direction looking for some likely sucker, I mean of course, some likely fellow, ready willing and able to spend a very small amount of time and effort on behalf of his fellow Amateurs. What about it men? Particularly some of you younger bods—don't let the oldies bluff you!

While you are about it, what about a change of scribe for these notes? I won't be at all offended if someone steps forward pen in hand ready to set the record straight. Volunteers please form an orderly queue outside the Secretary's QTH.

Our old confederate, Lou 6LU, recently had to spend some time in the confines of his local hospital. However, being a happy soul, he took it very philosof—??—he took it very well. In fact when he spoke to me via 600 ohm line he reckoned it was the best hospital outside of Blair General. I didn't know you were a Kildare fan Lou, I thought you'd be too busy pounding brass or working 15 metres. Ah, ah, there's the answer chaps, see how easy it is to get sucked in to watch these programmes? You just duck inside to check on Tennessee Valley Indians and, bingo, you're a goner! Anyway, hope all is well with you now OM.

Heard John 6TU on 80 the other evening—yes, I do still listen on the bands—still ironing a few bugs out of his sidebander. By golly, John, it didn't take long for your old call 6ZAG to be re-allocated. Its new holder (also john by name), Bro. Marks, is currently at work organising a youth radio club at Aquinas College. I hope we will soon be able to resume the weekly "school broadcast" of a couple of years back. John is being urged on by that refugee from Melbourne's DROUGHT, Jack 6RT, who has some fearful stories to tell about conditions in VK3.

It never rains but what there's a deluge for some folk. Strange how the Digit of Destiny or the Finger of Fate pursues some innocent party as if bent on total destruction. Ever noticed it?

Take our stalwart Broadcast Officer, Bob 6BE, for example. Why just the other evening he set out on a short journey, with nothing but goodwill in his heart, to retrieve a junior member of the family from night school. However, even the shortest of runs can be hazardous in these modern times, and Bob soon became painfully aware that ALL WAS NOT WELL. In fact it seemed to him that one of his tyres was making like it had a permanent flat side. Closer inspection revealed that this was definitely the case, it was definitely flat on the side nearest the road! Somewhat taken aback by the lateness of the hour and lack of illumination, Bob set about the problem of finding and fitting the spare wheel. Finally he located it—in the spare wheel compartment --and proceeded in the approved manner to make the vehicle roadworthy. This was soon accomplished—after all, it doesn't take long for an expert to do five minutes work, and Bob carefully placed all the equipment tidily in the boot, slammed the lid and stood back wiping his hands in satisfaction as one usually does at the end of a job well done.

It was at this precious moment in time that the disconcerting fact struck him, THE IGNITION KEYS were also tidily packed in the locked boot!! Don't go away, I haven't finished recounting the night's adventure just yet.

Somewhat put out by the current state of affairs, Bob hot-footed it to the nearest phone box to report in to the XYL requesting her to dispatch a duplicate key—but quick. This was duly accomplished by courtesy of a friendly neighbour and our hero sped off on his errand of mercy or something. As old father time entered rather largely into calculations at this stage, his accelerator foot was want to be rather heavily depressed in the general direction of maximum—within the legal limit, of course, and the horses strained at their task.

Suddenly, into his horrified gaze there loomed the head of a cow. The impact was shattering, firstly for the front of Bob's car, and secondly for the neck of the cow! An oncoming motorist had to take hasty evasive action as its body hurtled towards him. I will spare you the gory details dear readers (both of you) and also the shocking language which no doubt filled the still night air. Ah me, I know just how you felt OM, having recently undergone some of the same sort of thing. I was the only Amateur in a four-car sandwich. The puns that fellow comes out with!

A somewhat lighter side of the whole episode came when it was time to sign the Magna Carta. It was those two questions at the bottom of the Claim Form which allowed Bob to give vent to his true feelings. The first one said in effect. "In your opinion, who was responsible for the accident? Secondly, why?" No doubt with visions of his vanishing no claim bonus, Bob tartly replied, (1) The cow. (2) It failed to look in both directions before crossing. Enough! Enough! they cried.

Bill 6WY recently had a short shift as chief cook and bottle washer, the reason being the hospitalisation of his XYL Joyce, who is a very diligent behind-the-scenes worker in the preparation of our VK6 Bulletin. We wish you a complete and speedy recovery!

Not enough has been said about the alleged pirate stations who have been active DX-wise on the 27 meg. band. Remember that any unauthorised transmission on ANY band may reflect on you as an Amateur so if you hear anything untoward, listen carefully to verify the facts and then **do something about it. Report it. Don't leave it to the next bloke. Do it now.** Get the picture?

The v.h.f. portion of the spectrum has seen some very interesting goings on in recent weeks. More openings to JA, reception of Russian television, and reports of reception of aircraft control traffic from the fighting zone to our north. With a Field Day hoving into view, interest in these bands could reach an all time high.

Just a word in confidence to you t'other siders. I have just received a whisper that Bernie 6KJ and son Kim may be journeying toward the rising sun some time in May.

I would dearly like to be bright enough to leave you with some profound statement on which to ponder, but, well, you know how it is. 73, and good DX, Ross VK6DA.

HAMADS

Minimum 50c for thirty words.
Extra words, 2c each.

Advertisements under this heading will be accepted only from Amateurs and S.w.l's. The Publishers reserve the right to reject any advertising which, in their opinion, is of a commercial nature. **Copy must be received at P.O. Box 36, East Melbourne, Vic., 3002, by 5th of the month and remittance must accompany the advertisement.**

FOR SALE: Deltahet Communications Receiver in excellent condition. Multiband S.s.b. Transmitter, working but needs alignment. Electronic T/R Switch. Heterodyne V.f.o. Grid Dipper. What offers? VK2AV, Tel. 57-3125.

FOR SALE: Frequency Meter BC221AK, original U.S. Signal Corps carrying case, regulated power supply, excellent condition, original calibration book, $80. Hewlett Packard Lowpass Filters, Model 360B 1200 Mc., 360C 2200 Mc., 360D 4100 Mc., the lot $60 (list price $195). Highly sensitive Multimeter, Transranger B.P.L., British Physical Laboratories, 1 meg. per volt, volts d.c.: 500, 300, 100, 30, 10, 3, 300 mV., 100 mV., 1 uA.; resistance: 1K to 100 meg. in three ranges, 20 uR. movement, $32. (Appearance similar to Avo Meter.) VK5FH, P.O. Box 48, Crafers, S.A., 5152.

FOR SALE: Modified PTCA-116, working on 6 mx a.m. net, with QQV02/6 in p.a., built-in metering, speaker and mike, $40 excl. freight. VK7ZFM, F. Richelme, Main Rd., Stanley, Tas., 7331.

FOR SALE: Swan 350 Transceiver with matching 240v. Swan power supply, $360. Hustler BTV Vertical 10-80 metres, $50. 6 mx Tx, 6/40 final, mod. 2 x 807s with power supply, $40. Modulator 807s class B zero bias with UM2 trans., $20. Command O5er, $8. Command Tx, 4/5.3 Mc., $10. Ecko 9-valve Car Radio, less dial, 12v. dual wave, $15. 115 copies "QST" to Dec. '67, $18. 60 copies "CQ" mag. till Dec. '67, $8. Ian McCosker, P.O. Box 299, Moree, N.S.W., 2400. Phone 1060.

FOR SALE: Table-top 10-80 mx Tx and power supply, $60. VK3APC transistorised 80 metre receiver, $60. 5 Mc. crystal filter, $10. A.W.A. 10w. amplifier and pre-amp., $10. VK3AHG, 20 Grandview Rd., Box Hill South, Vic., 3128. Phone 288-2024 (Melbourne).

FOR SALE: 1 only 522 Tx-Rx plus a.c. p.s.u. and controller, $40. 1 only BC659 FM Tx Rx, 28 Mc., $10 each. 1 only 522 Tx-Rx, good condition, $22. 1 only AR7 Dial and Gearbox, $7. 2 only Pye Mk. 1 Taxiphones, unmodified, $24 each. 1 Compass Rx, converted 240v. a.c., plus speaker, $16. 1 only AT5 Tx, unmodified, $9. 1 only AT5 Ant. Coupler, $6. 1 only American I.F.F., 24 volt, $10. 1 only English I.F.F., 12 volt, $8. 1 only ARC1 V.h.f. Aircraft Tx-Rx, 20-channel, plus controller, $40. 2 only Aircraft Marker Receivers, 75 Mc., $8 each. W. Babb, VK3AQB, 20 Ovens St., Yarraville, Vic., 3013. Phone 68-6657.

FOR SALE: 7-foot enclosed Rack with A.W.A. AR17 650/250 volt power supply (near new) (rack mounted version of Type S). Brand new No. 19 Mk. II. complete. Philips PCR Communication Rx (12 v.d.c./240 v.a.c.). Rotary Converter, 24 v.d.c./240 v.a.c. 50 c.p.s. 400 volt Vibrator Supply with spare vibs. Factory o'hauled 12v. Command Tx and Modulator. Parts SCR522. 6 to 9 Mc. VFO. Manual Antenna Rotator (ex R.A.A.F.). Meters galore, transformers by ton, host of other bits and pieces. No reasonable offer refused for any item. Must sell. VK3ZQZ, Telephone 58-7626.

FOR SALE: 50-foot Telescopic Tower. Fair condition. $50 or best offer. L3173, M. G. White, 62 Peter St., Box Hill North, Vic., 3129. Phone 88-1659.

FOR SALE: 60 ft. Tower and Rotator, $120. 100 ft. Telescopic Tower, brand new, $75. Mrs. E. Cameron phone 311-3897 (Melb.) after 4 p.m.

FOR SALE: 122 Set, $45. Hammerlund Super Pro Rcvr., 2.5 Mc. to 30 Mc., $130. R.A.A.F. AT14 Tx, modified for 3.5 Mc. to 30 Mc., $140. VK3APC Club Project Receiver (transistorised) with all converters and xtals, 160 mx to 2 mx, $190. VK3XV, Phone 57-1472.

SELL: Heathkit Model GR-91 Rx, freq. 1.5 to 30 Mc., good condition, plus step-down transformer 240v.-115v., built-in v.f.o., $80. Bruce Paton, 15 Dean Ave., Mt. Waverley, Vic., 3149. Ph. 232-8141 after 6 p.m.

SELL: Leak TL-12 Amplifier with Leak Point One plus Pre-amp., $100. Wharfedale Xover Network, 8/15 ohms, 2 or 3-way, 800 c/s. and 5,000 c/s. xover freq., $8. Wharfedale W12FS Speaker, $40. All 2 years old in brand new condition. Apply to Rick VK3RC, 11 Highfield Rd., East Doncaster, Vic. Phone 842-2630.

SELL: SX-111 Amateur Band Receiver, 0.5 to 5 kc. selectivity, crystal calibrator, etc., $160; add $20 for air freight shipping. SB-10 SSB Adaptor, $65; add $10 for air freight. Johnson Courier Linear, 500w. input, built-in power supply, 35 watts drive, $130; add $30 for air freight. Johnson 6N2 Transmitter without final valve, $20; add $10 for air freight. Dow-key Co-ax Relay, $12 will air mail. Heath Mohican Transistor Receiver, $110; add $15 for air freight. All (except 6N2) in use until recently, working well. See picture of station in "CQ" Nov. 1967, page 88. Gene Nurkka, VK9GN, Box 73, Ukarumpa, EHD, Territory of New Guinea.

SELL: Vibroflex Blue Racer Deluxe, chrome base, jewelled bearings, red fittings. Luxury key for discriminating c.w. man, absolutely as new. Cost $44 to land, sell $35. VK3IB, P.O. Box 35, Dimboola, Vic., 3414.

SELL: 40 ft. 4 x 4 in. tapered Oregon Mast, $20. 20 ft. ladder gin pole with 7 pulley tackle for lifting mast, $9. S.s.b. Xtal Filter with carrier xtals (5285 Kc.), $12.50. Eddystone Dial, aluminium box and components for Synthetic Rock V.f.o., $12.50. Power Supply: 900v. 300 mA., 300v. 150 mA., —150v. bias, $35. Cabinet and components for linear with single 8236, $10. Aluminium Tube for 2 el. Yagi (20m), $15. Air-flow Socket for 4X250, $6. The Rev. J. R. Oxley, VK3XU, 5 Poulson St., Carrum, Vic. Phone 772-2880.

WANTED: All Coil Boxes and circuit for an AR7, also the circuit for an AMR100 Receiver. L. Hughes, L3240, Phone 29-3706 (Melbourne).

WANTED: Eddystone S640 Receiver or similar, working or otherwise but with intact front end. VK3EZ, T. Mitchell, Phone 288-2217 (Melbourne).

WANTED: Free standing Tower with a height of at least 70 ft. Will remove at own expense. P. Nesbit, VK3APN, 32 The Grange, East Malvern, Vic., 3145. Phone 211-6637.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. Position in the list is determined by the first number shown. The first number represents the participant's total countries less any credits given for deleted countries. The second number shown represents the total D.X.C.C. credits given, including deleted countries. Where totals are the same, listings will be alphabetical by call sign.

Credits for new members and those whose totals have been amended are also shown.

PHONE

VK5MS	317/338	VK4HR	293/309
VK3AHO	314/326	VK4FJ	279/296
VK6RU	307/330	VK3TL	262/266
VK6MK	304/321	VK2APK	256/259
VK2JZ	300/315	VK4TY	256/257
VK5AB	300/314	VK2AAK	245/249

C.W.

VK2QL	300/320	VK4HR	268/290
VK3CX	291/312	VK3NC	266/286
VK4FJ	291/313	VK3ARX	266/274
VK4QM	291/313	VK6RU	264/285
VK3AHQ	289/301	VK3XB	259/272
VK2AGH	281/294	VK2APK	257/264

New Member:
VK8HA 100/101

OPEN

VK2AGH	310/328	VK4FJ	295/318
VK6RU	309/322	VK4TY	295/307
VK2VN	306/321	VK2EO	293/314
VK4HR	305/327	VK3ARX	287/295
VK4QM	305/329	VK3TL	281/285
VK6MK	305/322	VK2ACX	276/300

Note: The D.X.C.C. List has been amended. Credit for the operations listed in last month's notes has been withdrawn.

HOIKI OL-64 MULTITESTER

Ranges: D.C. Volts 0-0.3, 1, 10, 50, 250, 500, 1,000 and 5,000 volts (20K o.p.v.). A.C. Volts 0 to 10, 50, 250 and 1,000 volts (8K o.p.v.). D.C. Current 0 to 0.03, 1, 50 and 500 mA. Inductance: 0 to 5,000 Henries. Capacitance: 250 pF. to 0.02 uF. Resistance: 0 to 5K, 500K, 5 Meg. and 50 Meg. Ohms. Decibels: minus 20 to plus 22, plus 20 to plus 36 db. (Reference 0 db. equals 0.775 volts equals 1 mW. across 600 ohms).

Price $20.00

KEW-66 MULTITESTER

Ranges—D.C. and A.C. Volts (20,000 ohm/volt): 0-1, 2.5, 5, 10, 25, 50, 100, 250, 500, 1,000 volts. D.C. Current: 0-50 microamp., 0-2.5, 25, 500 mA. Resistance: 0-5K, 50K, 500K, 5 megohms. Decibel: minus 20 to plus 22 db. (0 db. equals 1 mW. in 600 ohm). Uses printed circuit and incorporates mirror scale for high accuracy readings and a built-in overload protection device.

Price $19.75

KEW-33 MULTITESTER

Ranges—D.C. (20,000 ohm/volt) and A.C. (10,000 ohm/volt) Volts: 0-10, 50, 250, 500, 1,000 volts. D.C. Current: 0-500 microamp., 10 mA., 250 mA. Resistance: 0-20K, 200K, 2 megohms. Decibels: minus 20 to plus 22 db. Designed with advanced circuitry, the Kew-33 uses unitised printed circuit board, is ruggedly built in high-impact case, and incorporates mirror scale, automatic overload protection and "turn-round" plugs.

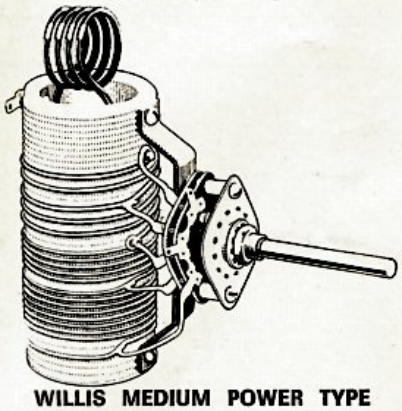
Price $15.50

KEW "S" METERS

Type P-25 receiver "S" Meters, 2¼ inch square, clear scale calibrated to S9 (black) and to plus 40 db. over S9 (red).

Price $4.75

PI-COUPLERS



WILLIS MEDIUM POWER TYPE

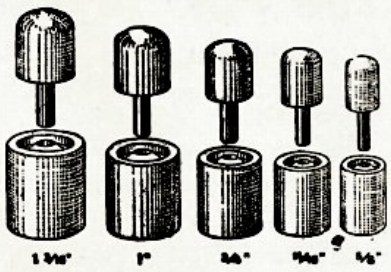
For use up to 600 watts p.e.p. Match plate loads of 2,000 to 3,500 ohms (Z) and higher into co-axial cable. Operating Q increases on higher frequencies to increase harmonic suppression, enabling practical values of tuning capacity to be used on 10 and 15 metres and allowing for wiring inductance (L). Incorporates extra switch section for shunting additional capacity (C) if required, or switching other circuits. Switch rated or 10 amps. at 2,000 volts with contact resistant (R) of 0.8 milliohms. **Price $8.85.**

Geloso Pi-Coupler Type 4/111 for use with parallel 807s, 6146s, etc. 75 watts. **$3.94**

Geloso Pi-Coupler Type 4/112 for use with single-ended 807, 6146, etc. 75 watts. **$3.94.**

Geloso Pi-Coupler Type 4/113 for use with parallel 807s, 6146s, etc. 100 watts. **$4.37.**

PUNCHES



WILLIS HAMMER DIE PUNCHES

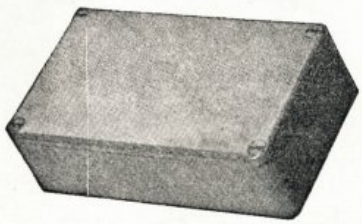
WILLIS hammer type die punches are made to precise sizes for use in industry wherever a clean, round hole is wanted. Designed to punch down to 14 gauge steel. Centre remnant removed with a flick of the hand. Can be used in die press. Special sizes made to order at slight additional cost.

3/8 in.	$2.40	1-1/2 in.	$6.00
7/16 in.	$2.40	1-5/8 in.	$6.40
1/2 in.	$2.60	1-3/4 in.	$7.20
5/8 in.	$2.60	1-7/8 in.	$8.00
11/16 in.	$2.80	2 in.	$8.40
3/4 in.	$3.00	2-1/16 in.	$8.60
13/16 in.	$3.20	2-1/8 in.	$9.00
7/8 in.	$3.80	2-3/16 in.	$9.40
1 in.	$3.80	2-1/4 in.	$9.60
1-1/16 in.	$4.00	2-5/16 in.	$9.60
1-1/8 in.	$4.00	2-3/8 in.	$10.40
1-3/16 in.	$5.00	2-1/2 in.	$11.00
1-1/4 in.	$5.20	2-3/4 in.	$12.40
1-5/16 in.	$5.20	3 in.	$13.40
1-3/8 in.	$5.60	3-1/4 in.	$15.80
1-7/16 in.	$5.80	3-1/2 in.	$18.20

Q-MAX CHASSIS PUNCH

SCREW TYPE

3/8 in.	$1.88	1-7/32 in.	$3.80
7/16 in.	$2.00	1-1/4 in.	$3.80
1/2 in.	$2.00	1-5/16 in.	$4.08
9/16 in.	$2.00	1-3/8 in.	$4.08
5/8 in.	$2.00	1-1/2 in.	$4.08
11/16 in.	$2.56	1-5/8 in.	$4.44
3/4 in.	$2.56	1-3/4 in.	$4.44
13/16 in.	$3.08	2 in.	$5.60
7/8 in.	$3.08	2-3/32 in.	$6.64
15/16 in.	$3.68	2-1/2 in.	$7.92
1 in.	$3.68	1 in. sq. hole	$5.56
1-1/16 in.	$3.68	11/16 in. s. hole	$5.32
1-1/8 in.	$3.68	21/32 x 15/16 rectang. hole	$7.62
1-3/16 in.	$3.68		



INSTRUMENT BOXES

These virtually water-tight die-cast boxes are made of zinc alloy material in four sizes. Each box is supplied with a close-fitting flange lid, securely held with countersunk 4 BA screws. Natural finish. These substantial boxes are invaluable for many purposes. Sizes available:—

Type 6908/P (650) 4½ x 3½ x 2 in. **$2.79**

Type 6827/P (845) 7¾ x 4½ x 2 in. **$4.50**

Type 7134/P (896) 4¼ x 2¼ x 1 in. $1.93

Type 903 7⅜ x 4-11/16 x 3 in. **$4.86**

A & R TOROID BALUNS

General Specifications: Power Rating—Types A, B, C, 200 watts or 400 watts p.e.p., provided the s.w.r. is less than 2 : 1. Construction—Toroidal ferrite cores, fully encapsulated with epoxy resin and silica under vacuum. Suitable for use in cold to sub-tropical areas. All except 355C and 356C are provided with antenna insulator support brackets. Balun dimensions approx. 2 in. diam. x 1 in. plus socket and lugs. Weight approx. 3¼ to 4 oz.

Installation: When used at the antenna centre, use at least one insulator each side of the brackets and connect antenna leads to Balun terminals with 23/0076 in. or similar flexible wire. (These leads form part of the antenna length.) Types A only: When the Balun and Co-axial Cable are not supported at the centre of the antenna, it will be necessary to tie the co-axial plug to the Balun brackets with nylon cord or wire to prevent the co-axial cable from pulling the plug from the socket.

Type 350A—Impedance ratio 1 : 1. 75 ohms unbalanced to 75 ohms balanced. 3 to 30 Mc. For use at centre of a dipole antenna with co-axial cable feed line or at base end with 75 ohm twin line. Co-axial connector is Belling & Lee L604/S and lug terminals. **Price $4.25.**

Type 351A—Impedance ratio 1 : 4. 75 ohms unbalanced to 300 ohms balanced. 3 to 30 Mc. For use at centre of a folded dipole antenna with co-axial feed line or at base end with 300 ohm twin line connector and terminals as 350A. **Price $4.25.**

Type 352A/BC—Details as 350A except freq. range 500 Kc. to 5 Mc., or to 30 Mc. for receiving purposes only with increased attenuation. **Price $4.25.**

Type 353B—This is a type 350 with a co-axial socket SO239 (Amphenol screw type). **Price $4.92.**

Type 354B—Type 351 with SO239 co-axial socket. **Price $4.92.**

Type 355C—Impedance ratio 2.1 : 1. 52 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. For use at the base of a mobile whip antenna, coupled to fixed or adjustable transmitter output impedance. Lug terminals. **Price $4.92.**

Type 356C—Impedance ratio 3.1 : 1. 78 ohms unbalanced to 25 ohms unbalanced. 3 to 30 Mc. Lug terminals. Use as 355C. **Price $3.87.**

MOSQUITO SIGNAL INJECTOR

Type MS-130

Pocket size instrument finds defective circuits—IMMEDIATELY!

For every technician or engineer who must find defective circuits quickly and exactly, the new Mosquito with detachable probe—pocket size, cordless, pen-type instrument which generates and injects a rich signal covering the audio, i.f. and r.f. spectrum!

The Mosquito contains a transistor oscillator, powered by a single 1.5 volt pen light cell, which completely eliminates the need for a large expensive signal generator. It can be coupled into magnetic pick-ups and circuits **without leads.** And the Mosquito oscillates at approximately 1,000 cycles per second, with a wave form which is rich in harmonics. This is truly the simplest, fastest, **most effective,** most economical way to find defective circuits —it belongs in your pocket now!

Price $15.00

CITIZEN BAND TRANSCEIVERS

TOKAI Type TC-911 9-Transistor Citizen Band Transceivers. P.M.G. approved. Use like a telephone with separate microphone and receiver. Push-to-talk operation. 100 mW. input. Single rod antenna system. Range better than 2 miles over average terrain. Best we have ever tested. Best value on the market.

Price $75.95

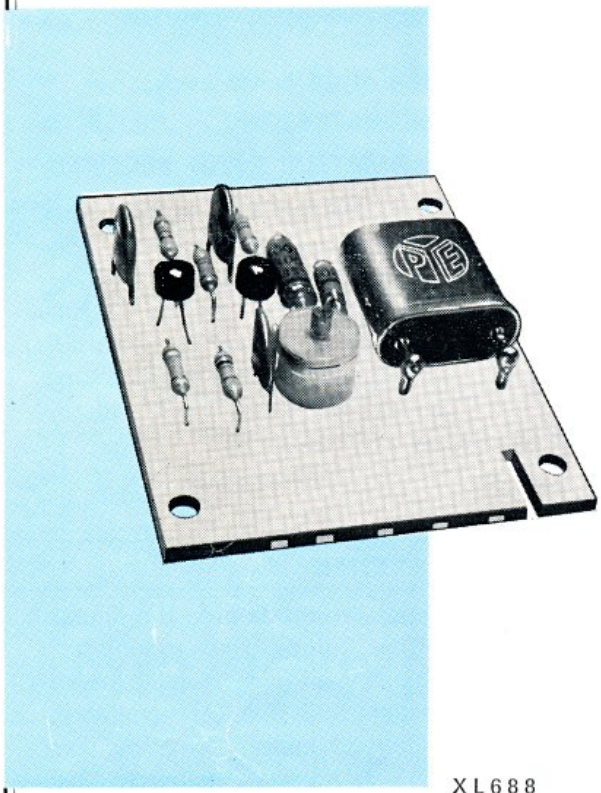
WILLIAM WILLIS & CO. PTY. LTD.

430 ELIZABETH STREET, MELBOURNE, VIC., 3000 Phone: 34-6539

PRINTED CIRCUIT

CRYSTAL CONTROLLED OSCILLATORS

RANGE: 1.5 Kc. to 100 Mc.



XL688

PYE PTY. LTD. offer a range of printed circuit Crystal Control Oscillators, of known stability and guaranteed outputs.

These oscillators are intended for incorporation as complete sub-assemblies in major electronic equipment or for use individually as frequency markers, or reference oscillators.

This will relieve a design engineer of the sometimes difficult and invariable time consuming task of oscillator design and layout.

The packaged oscillator units are constructed on high quality Epoxy fibreglass boards, employ high grade components and silicon planar transistors and are available in either "wire-in" or "plug-in" configurations.

Types now available are:—

XL687	1.5	Kc.	to	6	Kc. $37.28
XL683	+6	Kc.	to	50	Kc. $31.50
XL681/A1	+50	Kc.	to	60	Kc. $22.58
XL681/A2	+60	Kc.	to	75	Kc. $22.58
XL681/A3	+75	Kc.	to	150	Kc. $20.79
XL682	+150	Kc.	to	525	Kc. $14.37
XL692	500	Kc.	to	1	Mc. $21.43
XL688/A1	+1	Mc.	to	6	Mc. $13.13
XL688/A2	+6	Mc.	to	20	Mc. $11.03
XL690	+20	Mc.	to	60	Mc. $11.03
XL691	+60	Mc.	to	100	Mc. $12.60

67-536 In-Line Socket (optional extra) 56c

(Plus Sales Tax if applicable)

SPECIFICATIONS

Frequency Range	1 to 20 Mc.
Frequency Accuracy— Set at factory to within	±0.001%
Frequency/Temperature Stability (0°C. to +60°C.)	±0.005% (1 to 2 Mc.) ±0.003% (2 to 20 „)
Supply Voltage	12 volts DC
Current Drain	15 mA. max.
Output Voltage into 1KΩ min.	1 to 6 Mc. 250 mV. R.M.S. min. 6 to 20 Mc. 500 mV. R.M.S. min.
Output Waveform	Sine.

PYE PTY. LTD.
Q.C.B. APPROVED ORGANISATION

AUSTRALIAN MADE

P.O. BOX 105, CLAYTON, VICTORIA, 3168
Tel. 544-0361 TELEGRAMS: "PYTRONIC" MELBOURNE
Brisbane, Sydney, Adelaide, Perth, Hobart, Canberra, Geelong

SEND FOR FULL DETAILS POSTED FREE